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ANNOUNCEMENT OF BIENNIAL MEETING

(In conjunction with the A.A.A.S.)
December 28-29, 1949. Hotel New Yorker, New York, N.Y.

Wednesday A.M., December 28—Symposium on *Permissiveness Versus Rigidity in Relation to Child Rearing, Personality and Culture.*

Wednesday P.M., December 28—Symposium on *The Concept of Maturity from the Anatomical Physiological and Psychological Points of View.*

Members may make reservations at the Hotel New Yorker by writing immediately to Miss Sylvia T. Peltoner, Manager—Housing Bureau—N.Y. Convention & Visitors Bureau—500 Park Avenue, New York 22, N.Y.

* * * * *

A Message from the President of the Society

Last January each member received from Dr. Robert Sears a complete report of the meeting of the Joint Committee representing your Society and the Child Development Committee of the National Research Council. A progress report seems in order at the end of this first six months of our new life as an autonomous society.

Immediately following the December meeting your Governing Council approved the appointment of Dr. Thomas W. Richards as Editor-*in*-Chief and Business Manager for the Child Development Publications and as Treasurer of the Society. They also approved the appointment of Miss Alene M. Gustavson as Assistant Editor and Assistant Treasurer.

Following the resignation of Dr. Carroll E. Palmer in January, the Council approved the appointments of Dr. Robert Havighurst and Miss Ruth I. Cooper as Secretary and Associate Secretary respectively.

As an independent, self-supporting Society we need a complete revision of our Constitution including the problems of officers, Council, Publications, membership, meetings, and dues. A committee consisting of Dr. Celia B. Stendler (Chairman), Dr. Ruth Updegraff, and Dr. Carson McGuire is busy with this task now and will present their report at the next biennial meeting. The members of this committee will be glad to have suggestions from you.

A committee consisting of Dr. Charlotte del Solar (Chairman), Dr. Milton J. E. Senn, Dr. Harry Shapiro, and Miss Ruth Cooper is busily engaged in building an interesting and worth-while program for our next meeting.

May I take this opportunity of urging every member to make plans now for the New York meeting, December 28th-29th. We will consider such important matters as the adoption of a new constitution, the election of new officers, and plans for the future development of the Society. Please mark the dates of this meeting on your calendar.

ALFRED H. WASHBURN, *President*
University of Colorado, School of Medicine
Denver, Colorado

EDITORIAL COMMENT

The current issue of *Child Development* is the first to be published under conditions of a change in editorial organization. Since 1936 this journal (as well as the *Monographs of the Society for Research in Child Development* and the *Child Development Abstracts and Bibliography*) was published under the joint auspices of the National Research Council (through its committee on Child Development) and the Society for Research in Child Development. During the past year the Society has taken over fully the responsibility for all three publications. The *Abstracts* is to be edited in cooperation with the Children's Bureau of the Federal Security Agency, with Isidore Altman serving as Editor.

With reference to all three publications, but with *Child Development* in mind in particular, it seems appropriate at this point to give some expression of editorial policy.

It is our feeling that the three publications, belonging as they do to the Society for Research in Child Development, should reflect the interests of the Society. Its membership is composed of people in many disciplines and professions. Two characteristics of their common meeting ground seem vital: (1) research and (2) interdisciplinary flexibility.

There are those who feel that "child development" is too broad a concept to be considered itself a specialty, and that in this sense the investigator working in child development is bound to have an allegiance more intimate with some one discipline, such as nutrition or pediatrics or anthropology. Others equally vocal seem to feel that, with definition of "child development" such as the study of the growth of the child as an integral unit, this is indeed a specialty, for which a curriculum of training and other functional determinants give unique structure. Within the membership of the Society, both points of view are maintained with validity. We would like, as editors, to keep in this regard a careful neutrality. We feel, however, that the controversy itself serves in great part to structure the editorial task. In these terms we should like to emphasize in *Child Development*—

(1) Research on children that will be of interest to those in a wide variety of disciplines (as distinct from research within a discipline that would have meaning perhaps almost entirely within that discipline).

(2) Research that is itself interdisciplinary. This might be an expression of the cooperative effort of scientists in two or more specialties, or of the effort of several investigators of whatever special training to achieve scientific understanding of problems which themselves are interdisciplinary in character.

(3) Research on the child as an integrated individual with emphasis particularly on development, and the broad implications of such study for children generally.

(4) Integrations of research findings in studies of children which will serve to increase understanding, or reduce barriers, between disciplines, and so facilitate cooperative research.

(5) Research on children which seems particularly significant in the light of the broad problems of the world today. It is the function of publication to bring research out of the laboratory and ivory tower in order to reach not only scientists, but also the larger public which needs to know, in regard to child welfare, the continuous contribution of research.

T. W. Richards
Editor

THE FULL-RANGE PICTURE VOCABULARY TEST: III. RESULTS FOR A PRESCHOOL-AGE POPULATION[1]

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and

JAMES CLIFFORD HOLMES
University of Denver

In previous papers (3, 5) in this series, the generally important role of vocabulary items in intelligence testing has been discussed. Vocabulary tests are used at the two- to five-year level, although probably not as often then as later. The 1937 Stanford-Binet (11) measures vocabulary in several ways at the preschool level. Tests include Identifying Objects by Name, Identifying Parts of the Body, Identifying Objects by Use, and Picture Vocabulary.

The Minnesota Preschool Scale (9) contains such indirect verbal items as Pointing out Parts of the Body, Pointing out Objects in Pictures, and Giving Word Opposites. Considerable importance is given to verbal subtests in the Binet and Minnesota Preschool, and even the Cattell Infant Intelligence Scale (8) calls for pointing to the parts of a doll as named by the tester and identifying objects and pictures by name. In contrast to these tests where non-verbal items are also used are the Van Alstyne Picture Vocabulary Test for Young Children (12) and the Full-Range Picture Vocabulary Test (1). Both use only identification-type vocabulary items to measure intellectual ability.

To be really useful, a test must have satisfactory standardization as well as suitable items. A survey of the tests mentioned above reveals a wide range of adequacy in their standardizations. The Minnesota Preschool Scale (9) was given to 900 children, 100 in each of 9 half-year age groups, eighteen months to six years. These children were equally divided as to sex, and their fathers were representative occupationally of the total adult male population of Minneapolis according to the 1920 census. The 1937 Stanford-Binet standardization (11) was based on tests given to 76 to 100 children at each half-year age level two to five and one-half years. The sampling was made fairly representative of the white American-born population on the basis of such criteria as age, sex, geographical location, and parents' occupations relative to the 1930 census.

[1]Acknowledgment is due Mr. Neil W. Coppinger, Mrs. Helen S. Ammons, and Mr. Newell H. Berthelot-Berry of Tulane University for reading the manuscript critically and offering many helpful suggestions. The test and manual with final scale norms, answer sheets, and instructions for administration (1) can be obtained from R. B. Ammons.

The Cattell Infant Intelligence Scale (8) was standardized by retesting 274 children at age levels from three to thirty-six months. Unfortunately, the conditions of the testing were such that a select group of children was obtained, with Stanford-Binet IQ's averaging 118 at the age of 36 months. The sample of children tested by Van Alstyne (12) was even more restricted. Norms are based on results from testing only 80 children, thirty-three to thirty-nine months of age, with an average IQ placing them in the superior range.

From the above discussion it can be seen that vocabulary items are widely used in intelligence tests, even at the preschool age-level. Their utility as measures of general intelligence is indicated by a correlation of .72 between the picture vocabulary MA of the 1937 Stanford-Binet (11) and the full or short scale MA for children under the CA of four years one month. The intrinsic interest value of picture vocabulary tests combined with apparently high reliability and validity (3, 5, 12) recommends them for clinical use.

Problem

This investigation was concerned with the standardization of the Full-Range Picture Vocabulary Test on a preschool-age population. This involved the following: (a) Choice of suitable preliminary items for each set of pictures.[2] (b) Preliminary testing and item analysis for the purpose of deriving a tentative scale for use in standardization. (c) Testing a sample of preschool-age children which could be considered relatively representative of the United States preschool-age white population. (d) Selecting the best items for final scales. (e) Constructing equivalent final forms of the test. (f) Calculating norms based on these final forms. (g) Determining the reliability and validity of the two forms.

Procedure

Materials: Testing was done with 16 plates, 8½ by 11 inches, each with four cartoon-like line drawings. Common objects, human activities, and familiar scenes are pictured in the series, several pictures from which are reproduced in Ammons and Huth (3). Standard 1937 Stanford-Binet materials (11) were used for the Binet testing.

Test words for the picture vocabulary were obtained from two sources. Ammons and Huth (3) tested 52 children with a large number of words, and 48 of their best items were retained. As a part of the standardization project 243 more items were listed. Of these, 43 were eliminated by group discussion and the remaining 248 were pretested by the group (2, 4, 5, 6, 7) on children of CA's two through seventeen, as well as 20 adults of a wide range of intelligence. A total of 226 was retained, of which 62

[2]Steps a, b, and e are described in detail elsewhere (5).

were approximately of suitable difficulty for CA's two through six. Words were eliminated on the following grounds: failure to discriminate between successive age levels, technical meaning, regional meaning, ambiguity of reference, duplication, too many at a level, and differences in difficulty for the sexes.

The 226 words in the tentative scale were arranged by plates, and within plates by difficulty. Difficulty was calculated as the approximate 1937 Stanford-Binet vocabulary MA level at which 50 per cent of the pretest groups would have passed. The items are listed in Ammons and Rachiele (5), where a more complete account of their discovery and selection is also given.

Thus, testing was done with 16 plates, 226 pertinent words, and Form L of the 1937 Stanford-Binet.

TABLE I

MEAN CHRONOLOGICAL AGES AND STANDARD DEVIATIONS OF AGES BY CA LEVEL, SEX, AND FOR THE SEXES COMBINED FOR THE PRESCHOOL STANDARDIZATION SAMPLE

	Male			Female			Combined Sexes		
CA level	*N*	*M**	*SD**	*N*	*M*	*SD*	*N*	*M*	*SD*
2	15	29.7	3.2	15	30.4	3.9	30	30.0	3.6
3	15	42.4	3.8	15	40.5	3.7	30	41.5	3.9
4	15	53.5	3.7	15	52.9	4.1	30	53.2	3.9
5	15	65.1	2.4	15	64.7	2.9	30	64.9	2.7

*Means and standard deviations computed in months.

Subjects: The sample was controlled for age, sex, race, and occupational status of parents. Fifteen boys and 15 girls were tested at each chronological age level, two through five, making a total group of 120 children. Age was figured in years, with the two-year group running from 23 months 16 days to 35 months 15 days, for example. No direct attempt was made to control age within year spans. The average ages of the four groups were 30.0, 41.5, 53.2, and 64.9 months. A summary of age information for the group appears in Table I. Only native-born white children were included, and all were from Denver or the neighboring agricultural area.

Special care was taken with respect to control of family socioeconomic status, using occupational information. Since the fathers of preschool-age children are on the average younger than the total population of adult

males, the general census occupational distribution is not accurate for them. The occupational breakdown finally used was the employment table from the 1940 census (14b) for husbands of native white women with children under five years of age. This was felt to provide an excellent sampling basis, although parents of five-year-olds are excluded.

Information as to father's occupation was obtained from school records, welfare records, and direct questioning of parents. The 1940 census classification of occupations (14a) was used to place fathers in ten major occupational categories. An attempt was made to make the sample of children for each age level and sexes within levels as representative as possible with respect to father's occupation. Table II shows the occupational categories used, numbers of children tested with fathers falling in each, and number of fathers in each in the total population. It will be seen that the age-sex control was well maintained and that the overall percentages tested are very close to those in the criterion population. The final sample omits Negro children, children whose fathers' occupations were not reported, and "other white children," an estimated total of 27 per cent of the whole child population.

Children were obtained from many sources for testing.[3] Forty-four were from public day-care centers for the children of working mothers, 9 from private nursery schools, 15 from a Catholic charities day nursery, 24 from farms, and 28 from a variety of sources such as homes where a sibling had already been tested, and families contacted in public parks.

Testing: All children were given the 1937 Stanford-Binet and the Full-Range Picture Vocabulary Test. Testing was done by qualified graduate students who had been carefully instructed and checked as to proficiency in testing. The standard procedure as given by Terman and Merrill (11) was used with the Stanford-Binet.

In administering the picture vocabulary, all 226 preliminary items were administered, while final scores were computed from the items actually chosen for the final forms of the test (5). The child was ordinarily seated comfortably across a table from the examiner. He was told that he would be asked to point to some pictures and the first plate was shown with the question, "Where is the pie?" If he seemed not to understand the procedure, further questions were asked using words other than those in the 226-item scale and creating a game-like atmosphere until he clearly saw what to do. Testing started with the easiest item on each card, and proceeded until all items had been failed at three successive MA levels. It was assumed in scoring that all subsequent items would have been failed. Questions were varied to avoid monotony, the examiner saying "Put your finger on the ———," "Where is the ———," or "Show me the ———."

[3]Acknowledgment is due Miss Betty Johnson of the Denver Bureau of Public Welfare, Miss Alice Read of the Jack and Jill House, and Sister Salome of the Margery Reed Day Nursery for their willing and excellent help in the obtaining of the children for testing.

TABLE II

NUMBER OF SUBJECTS USED IN THE PRESENT PRESCHOOL-AGE STANDARDIZATION BY OCCUPATIONAL GROUP, AGE, SEX, AND PERCENTAGE OF TOTAL PRESCHOOL-AGE SAMPLE

Occupational group*	Age and Sex								Total	Actual per cent tested	Census per cent**
	Two		*Three*		*Four*		*Five*				
	M	F	M	F	M	F	M	F			
Professional and semi-professional	1	1	1	1	1	1	1	0	7	5.8	5.5
Farmers and farm managers	3	2	2	3	2	2	2	3	19	15.8	16.2
Proprietors, managers and officials	1	1	2	0	1	2	1	2	10	8.3	8.1
Clerical, sales and kindred	2	1	2	2	2	2	1	2	14	11.7	11.4
Craftsmen, foremen and kindred	2	2	3	2	2	2	3	2	18	15.0	15.3
Operatives and kindred	4	3	2	4	4	3	4	3	27	22.5	22.3
Service workers	0	1	1	0	0	1	0	1	4	3.3	3.3
Farm laborers and foremen	0	1	1	1	0	1	1	0	5	4.2	4.5
Laborers, except farm and mine	2	3	1	2	3	1	2	2	16	13.3	13.3
Total	15	15	15	15	15	15	15	15	120	99.9	99.9

*From the 1940 census (14a).

**These percentages were computed from the 1940 census (14b) for husbands of native white women with children under five years of age, derived from Table 41.

Guessing presented a special problem. It was seldom possible to eliminate it by verbal instructions, so other methods were used. The child was frequently asked in a friendly way why he had chosen a particular picture, or merely "Is *that* the ———?" Doubtful items were repeated later in the test. It was found possible to minimize guessing and maintain satisfactory rapport by avoiding long series of failures. Wherever the examiner felt it

would help, he was free to put in easy words not in the scale. In this way, a set for careful answering was maintained.

Testing was done in special rooms in the day-care centers and nurseries. When it was necessary to test in a private home or park, a relatively isolated place was found, and the necessity for non-participation was impressed upon the parents and other family members. Little difficulty was encountered on this score.

Results

An idea of the representativeness of the sample can be obtained by comparing mean IQ's for the standardization group with those reported by Terman and Merrill (11) for their group. The mean 1937 Stanford-Binet IQ's were 102.1, 101.5, 105.4, and 103.8 for our four groups which averaged 30.0, 41.5, 53.2, and 64.9 months of age. IQ's from the Binet standardization group were 109.9, 108.0, 103.7, and 101.4 for groups approximately 30, 42, 54, and 66 months of age. Our groups' average Binet IQ's compare quite favorably with those of the original Binet groups.

To select items for the final forms, the number passing each word at each age level was counted, and words showing ambiguity of reference, sex differences in difficulty, poor ability to discriminate between successive age groups or regionality of meaning were eliminated. On the basis of difficulty estimated from the 50 per cent passing level, the following words were kept for Form A:

below 2 years: pie, window, horse, clock, bed;
2 to 3 years: wagon, firecracker, telephone, crying, newspaper;
3 to 4 years: clothes, locket, numbers, accident, propellers;
4 to 5 years: counter, pump, explosion, farm, furniture;
5 to 6 years: clean, hot, danger, steel, refreshment.

The following words were kept for Form B:

below 2 years: car, bird, bathtub, train, airplane;
2 to 3 years: spoon, fight, fly, circle, policeman;
3 to 4 years: vegetable, phonograph, music, razor, operation;
4 to 5 years: meal, human, dessert, laundry, thermometer;
5 to 6 years: paying, island, listening, broadcast, uniform.

A more extensive discussion of the item selection procedure and items for higher age levels is given in Ammons and Rachiele (5).

Once the final items had been chosen, the number of them passed by each child on each form was computed. Tables III and IV show the mean score and standard deviation for each age, and for sexes separately for the two forms. It can be seen that there is a very close correspondence in diffi-

TABLE III

MEAN SCORES AND STANDARD DEVIATIONS FOR THE PRESENT PRESCHOOL-AGE STANDARDIZATION GROUP FOR FORM A OF THE FULL-RANGE PICTURE VOCABULARY TEST BY CA LEVEL, SEX, AND FOR THE SEXES COMBINED

	Male		Female		Combined sexes	
CA level*	*M*	*SD*	*M*	*SD*	*M*	*SD*
2	6.1	3.2	6.7	3.0	6.4	3.1
3	11.6	4.6	12.1	2.3	11.8	3.6
4	17.4	3.6	15.7	4.1	16.6	3.9
5	20.9	4.0	21.0	4.8	21.0	4.4

*See *Subjects* section for actual mean ages.

TABLE IV

MEAN SCORES AND STANDARD DEVIATIONS FOR THE PRESENT PRESCHOOL-AGE STANDARDIZATION GROUP FOR FORM B OF THE FULL-RANGE PICTURE VOCABULARY TEST BY CA LEVEL, SEX, AND FOR THE SEXES COMBINED

	Male		Female		Combined sexes	
CA level*	*M*	*SD*	*M*	*SD*	*M*	*SD*
2	6.1	2.9	6.7	2.4	6.4	2.7
3	11.9	4.5	11.4	3.2	11.6	3.9
4	17.5	3.4	15.6	4.5	16.5	4.1
5	19.5	4.3	21.1	5.3	20.3	5.0

*See *Subjects* section for actual mean ages.

culty level between the two forms, and a clearcut age progression in scores. There are no sex differences in the age means significant at even the ten per cent level of confidence. The final norms (1) at this age level are based on these tables.

To obtain an estimate of the reliability of the test, the scores on the two forms were correlated. Product-moment correlations of scores between the

forms were .76, .79, .83, .78, and .93 for age levels 2, 3, 4, 5, and the whole group respectively. Stanford-Binet MA and picture vocabulary scores correlated .85 for Form A and .83 for Form B for the whole range of talent, indicating a satisfactory validity. Another estimate of validity can be obtained from a comparison of the mean scores of successive age groups. All pairs of means of adjacent age groups show marked regular differences in favor of the older group. The final evidence for validity comes from clinical application. The test has been used with approximately 50 "problem" children at the University of Denver Psychological Service for Children, and in the authors' opinion it works well enough to justify using it in place of the Stanford-Binet in many cases.

Discussion

The separate forms of the picture vocabulary test are reasonably reliable and valid at the preschool ages, although reliability and validity are higher for school children (6). Persons wishing to raise the reliability can administer both forms, giving the test a predicted reliability of about .89 for each age group. By administering forms at the start and finish of psychological examinations the rapport value of the test can be exploited and estimates of fatigue and interest fluctuations obtained.

The test lends itself excellently to clinical work, since it has a higher interest value than other tests of verbal ability, takes only five to ten minutes to administer, and measures verbal ability without calling for verbal production on the part of the child. Here, as in all testing of small children, success is dependent on the skill of the tester. It should be noted in this connection that pictures are not as meaningful to the lower age groups as they are later on.

The picture vocabulary test is well adapted to longitudinal studies of intelligence. The similarity of the ability measured from level to level should make for results superior to those obtained when two or more tests are used at different levels (13). It should be possible better to predict later intelligence and study changes in intellectual level than has been possible with the tests available up to now. There would be no necessity in such studies to try to integrate results from tests with heterogeneous subject-matter and methods of testing.

Summary and Conclusions

The present problem was the standardization of the Full-Range Picture Vocabulary Test on a representative preschool-age population. A sample of 120 American-born, white children ranging in age from two through five years was used. Fifteen boys and 15 girls were tested at each CA level. Occupational status of the father was a further basis for selection. Numbers of children tested were in proportion to the percentages of each occupational

group found in the population of fathers of preschool-age children for the entire United States, as derived from the 1940 census. The children were tested mainly in public and private nursery schools and in urban and rural private homes.

The results of the standardization include: (a) two equivalent forms of the Full-Range Picture Vocabulary Test with a reliability coefficient of .93 for the preschool-age range and (b) separate norms for Forms A and B of the test by age and sex and also for the combined sexes at each age level. The correlations between the Full-Range Picture Vocabulary Test and the 1937 revision of the Stanford-Binet were found to be .85 for Form A and .83 for Form B.

It can be concluded that scores on the Full-Range Picture Vocabulary Test, as standardized, provide a highly reliable and valid estimate of verbal intelligence for native-born, white preschool-age children from urban and rural areas of the United States. The test is easily administered and quickly scored, and has considerable interest value for small children. Since answers can be given non-verbally, it is suitable for testing children who cannot or will not talk.

Bibliography

(1) Ammons, R. B. & Ammons, Helen S. *The Full-Range Picture Vocabulary Test.* New Orleans: R. B. Ammons, 1948.

(2) Ammons, R. B. & Agüero, A. The Full-Range Picture Vocabulary Test: VII. Results for a Spanish-American school-age population. *J. Soc. Psychol.*, in press.

(3) Ammons, R. B. & Huth, R. W. The Full-Range Picture Vocabulary Test: I. Preliminary scale. *J. Psychol.*, 1949, 28, 51-64.

(4) Ammons, R. B. & Manahan, N. The Full-Range Picture Vocabulary Test: VI. Results for a rural population. *J. Educ. Res.*, in press.

(5) Ammons, R. B. & Rachiele, L. D. The Full-Range Picture Vocabulary Test: II. Selection of items for final scales. *Educ. Psychol. Meas.*, in press.

(6) Ammons, R. B., Arnold, P. R. & Herrmann, R. S. The Full-Range Picture Vocabulary Test: IV. Results for a school population. In preparation.

(7) Ammons, R. B., Larson, W. L. & Shearn, C. R. The Full-Range Picture Vocabulary Test: V. Results for an adult population. *J. Consult. Psychol.*, in press.

(8) Cattell, Psyche. *The measurement of intelligence of infants and young children.* New York: Psychological Corporation, 1947.

(9) Goodenough, Florence L., Maurer, Katherine M. & Van Wagenen, M. J. *Minnesota Preschool Scale; Manual.* Minneapolis: Educational Test Bureau, 1938.

(10) SPACHE, G. The vocabulary tests of the Revised Stanford-Binet as independent measures of intelligence. *J. Educ. Res.*, 1943, 36, 512-516.

(11) TERMAN, L. M. & MERRILL, MAUDE A. *Measuring intelligence.* Boston: Houghton Mifflin, 1937.

(12) VAN ALSTYNE, DOROTHY. *Van Alstyne Picture Vocabulary Test for Pre-school Children.* Bloomington, Ill.: Public School Pub. Co., 1929.

(13) WELLMAN, BETH L. Mental growth from preschool to college. *J. Exp. Educ.*, 1937, 6, 127-138.

(14) *Sixteenth census of the United States, 1940. Population.* U. S. Bur. Census, U.S. Govt. Printing Office, 1940, et seq.

a. *Classified index of occupations,* 1940.

b. *Differential fertility; 1940 and 1910,* 1945.

A STUDY OF SOME SOCIO-MORAL JUDGMENTS OF JUNIOR HIGH SCHOOL CHILDREN

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This is an investigation of certain socio-moral judgments held by adolescents with regard to property. Specifically it will be an attempt to see whether high school juniors differ in their judgments on the act of stealing from a large corporation and stealing from a private individual. Observations of the behavior of adults in our industrial society would seem to indicate that this is a problem of major concern. Industrial concerns report each year that tremendous quantities of goods mysteriously disappear from factories and cannot be accounted for. All around us former G.I.'s wear pea coats, windbreakers, aviators' jackets, or other articles of apparel, the ex-serviceman's legal right to which might be questioned. It would appear there are large groups of people who are disregarding or have disregarded traditional moral and legal principles.

The problem of what is right and what is wrong with regard to property is one small aspect of the problem of redefining moral values in an industrial age. When the face-to-face relationships of an agrarian society were the order of the day, or when locally owned and paternalistically managed factories prevailed, it was much easier to apply traditional moral principles in making a distinction between what was stealing and what was not stealing. In a large industrial civilization relationships are impersonal and complex ethical norms, which once were adequate and which were considered absolute, are increasingly losing their efficiency.

Particularly is it difficult to apply traditional norms toward those remote groups in our society whom we never see and with whom we have no intimate contact. As Sorokin ably puts it:

> As the social distance between us and other human beings increases, the intensity of our solidarity progressively decreases. The intensity of our solidarity and love, especially in our actions, is considerably lower to persons and groups even of the same town or city than in regard to our family and friends; it becomes still lower in regard to the other citizens of our state; and still less intense toward people as remote as the Chinese and Tasmanians. . . .
>
> Our interaction with these distant peoples is at best only indirect and discontinuous; our interdependence is remote and often intangible. We are not taught as persistently, as early, and as deeply the norms of love for them; we are taught to be indifferent and even inimical to them. Our norms and other values are predominantly diver-

> gent, in a considerable part discordant with theirs; we rarely practice the norms of the Golden Rule in regard to them or they in regard to us. ... The more a given person or group is a "stranger" to us, the more discrepant are his norms from ours, the weaker is our sympathy to such persons and groups. (10)

While Sorokin does not specifically mention large corporations one can see how the basic principle he has enunciated might apply. What would be regarded as an act of stealing from a private individual may not be considered wrong when a corporation is involved, because of the factor of social distance.

The problem is further complicated because, not only do we have the difficulty of working out values in an impersonal setting, but we also have the problem of coping with a tremendous shift in the basis of values. Over a period of the last 100 years some fundamental changes have been taking place in our thinking about how values are derived. Where formerly it was believed that moral values were logically independent of empirical factors, we now have considerable support for the position that ethical norms are culturally derived. The first position would state that moral laws are not derived out of experience, and that neither do they vary with experience or with situations. As Kant puts it, God and the soul and matters of morality are not verifiable within experience but belong to "the things-in-themselves." (6) Furthermore, these moral laws were absolute, universal, and frequently had the sanction of supernatural authority.

While the position that moral values are relative is not new philosophically, it received tremendous impetus during the latter half of the 19th century, partly as a result of the teachings and writings of Marx. In him we find an adherent of the second position that moral values are socially conditioned. Marx maintained that man produces certain principles or ideas in conformity with his social existence, and that the most important factor in determining these ideas is the social relations man enters into as a result of his means of earning a living. Consequently, values will vary from group to group according to a group's relationship to the means of production. Proletarian and bourgeois will differ in their moral principles because they differ in their relationship to the means of production. Furthermore, since these relations are transitory, the principles or values growing out of them are also transitory. They will vary in different historical periods and with different groups of people; there are no absolute, eternal values. (8)

From anthropological studies in the latter part of the 19th century, and continuing to the present time, has come an overwhelming body of evidence to support the theory that moral values are not absolute but are socially conditioned. To learn that such practices as the killing of children, human sacrifice, abandoning of the aged to starvation, homosexuality, mas-

turbation, lying and stealing, may be accepted mores in certain primitive tribes is shattering to the notion that truth is fixed, eternal and universal.

Not only do mores differ from society to society, but changes within the economic structure of a tribe can bring about changes in the value-systems of tribal members. This has been clearly demonstrated in the case of the Tanala, a primitive tribe living on the Island of Madagascar. For generations the tribe carried on a practice of communal farming, with the land owned by all, and with all members of the tribe in positions of relative equality to one another. The introduction of the technique of wet rice cultivation brought shattering changes in this primitive culture. The simple democracy of the people disappeared and in its place a class society of landowners, landless and slaves appeared. Marriage institutions, political institutions and even methods of war-making were radically altered, and values once held important in the tribe were supplanted by new and markedly different ones. (7)

But evidence from anthropological studies might not have carried such weight if it had not been for the fact that supernaturally conceived notions of good and evil had been losing ground during this same time. It might have been argued, "Because primitive tribes kill babies, or because values change with economic conditions in primitive societies the claim that our values are fixed and eternal is not necessarily invalidated. It might prove that ideas of right and wrong are not instinctive and not universal, but [the argument would go] it doesn't prove that they are relative because, after all, primitive people are God-less people who have not received the Word. In more civilized societies ideas of right and wrong are fixed and eternal because they are revealed by God." This argument, however, was not as powerful as it might once have been. The work of Darwin in proving the evolution of man from primitive forms had raised doubts regarding the Biblical story of creation and, correspondingly, doubts as to the supernatural origin of moral values. Increasingly we find people accepting the notion of the social conditioning of ethical norms.

Acceptance of the relativism of moral values has not settled the problems of mankind. Indeed, it may have seriously aggravated them. For relativism has given rise to the position that, if our values are culturally derived and if there are no fixed and eternal truths, then whatever the majority of people is doing is the right thing to do. In other words, the basis of moral values would be by majority vote. If Kinsey says most upper-class males carry on such-and-such sexual practices, then that makes these practices morally acceptable. Perhaps a good deal of the conformity which sociologists tell us is stressed in modern society is due to the fact that modern man, having no absolutes, feels compelled to make an absolute of being like his fellow men.

Another grave consequence of relativism has been that modern man has tended to become extremely cynical. If moral principles are culturally de-

rived, and if they have their basis in experience, then ideas and interest are interrelated. Since groups vary in their experiences, the crystallizations of those experiences in the form of values will differ. Therefore, man does not help his fellow man out of love for him, but simply because it is to his interest to do so. There are no nobler motives; man is prompted to act because his action will be rewarded. "He did that because he's just trying to get in good with someone," would be a popular expression of this cynicism.

The dilemma of modern man toward the problem of moral values is well illustrated in his relationship to property. Whereas in agrarian society it was fairly easy to apply the commandment "Thou shalt not steal," in industrial society the solution is not so simple. This is apparent in the study done by Jones in "Life, Liberty and Property." (4) He was interested in studying the relationship between certain attitudes and opinions and the "position in life" of the persons involved. Because corporate property plays such an important part in modern life, he chose to investigate attitudes toward it with the expectation that if there were differences in attitudes among social groups, these differences would be found here. Seventeen hundred adult residents of Akron were interviewed; they were told stories which described a struggle in which one side was working to protect the interests of corporate property and the other side the interests of an individual. Results showed some interesting differences between social groups in their attitudes toward corporate property as compared with private. An industrial magnate, for example, differs from a C.I.O. member in his attitude toward the use of tear-gas bombs in a sit-down strike. Industrial executives and business leaders hold an attitude closely corresponding to their economic position. The workers, and C.I.O. workers particularly, also hold attitudes corresponding to their economic position but not as clearly defined as the business leaders. The middle groups show a greater tendency toward divergence in their attitude toward corporate property.

Interestingly enough, the influence upon moral development of conditions growing out of an industrial society has received little attention in research with children. In Vernon Jones' discussion of character development (5), he analyzes the influence of intelligence, chronological age, sex, accidents and brain diseases, volitional factors, the home, associates, day schools, reading materials on children, and summarizes the research findings on these factors, but in the research he reports there is no attempt made to view moral development in a total cultural setting. Problems of lying and cheating and stealing are discussed as if there were absolutes in terms of which one might make decisions.

The classic work of Hartshorne and May (3) also fails to take into account the cultural nature of honesty and dishonesty. As a result of their extensive studies they came to the conclusion that there is no generalized trait of honesty, but that it is highly specific. A given child may refrain from cheating under certain circumstances, but cheat under others. Similarly, he may steal on one occasion but refrain from stealing under others.

The tests, however, were not constructed to test whether there might be a generalized factor operating in connection with honesty—the factor of who owns the property, an individual, the public, or a corporation.

In addition to the Jones study already discussed, there are two pieces of research on attitudes toward property where attention was given to the factor of who owns the property. One of these was a study by Waites (11) on the attitudes of adults toward property in a Lancashire, England, urban area. Choosing a group of 250 adults of both sexes, ages 21-70, who worked in the mills of a certain area, he explored three attitudes toward personal and public property: lending, damaging, and stealing. The adults were asked to arrange in order of seriousness various items under each category and to give reasons for their decisions. The order was found to depend on the amount of ego-involvement in the situation. Public property was put low on the lists, particularly when there was a contrast between "we" and "ours" and "they" and "theirs." There was a local pattern of choice, which indicated that results from other sections of the country might not coincide with these. He concludes: "If this be so, then the acquisition of property is a habit complex by which we select objects that satisfy our fundamental needs. The factor determining which objects we select for possession and which are rejected depends upon the culture pattern, modified by individual differences, in which we have been reared. Being, therefore, children of the culture, attitudes toward property will change with the culture."

The second study of stealing involving who owned the property was made by Eberhart (2). He tested 100 boys, grades 1-12, and supplemented the tests by interviews with boys above the 5th grade. He was interested in finding out what changes take place in boys' ranking of the offenses in successive grades. From the results, he drew generalizations to the effect that changes that do occur from grade to grade in the ranking of offenses are not haphazard but regular and perhaps predictable. From the fifth grade on, the changes were very slight, indicating that whatever concept of property rights is responsible for these judgments is relatively stable by that time. Eberhart attempted to group the items into four categories of ownership: property in the home, lost property, property having many owners, and property owned by one person. However, he found that the offenses in each category did not behave alike so no generalizations could be drawn.

In this study, guided by the hypothesis that the majority of adults operate on a principle differentiating private from corporate property and that this is due to the factor of social distance, the following questions were raised:

1. To what extent do children differentiate, verbally at least, between stealing from a corporation and stealing from a private individual?

2. What are the reasons children give for excusing some acts of stealing and condemning others?

3. Of the various rationalizations children give for stealing, which are most frequently employed?

4. What do children reveal concerning the relative or absolute nature of their moral judgments in the test situations presented?

Procedures

Preliminary interviews were held in order to locate the types of situations in which junior high school students might find themselves, and which would involve stealing property individually owned and property owned by a corporation. As a result of these interviews, five pairs of stories were composed; one story in each pair involved stealing private property, the other involved stealing corporate property. For each pair, a rationalization for the theft was presented. Thus, in the first pair of stories, the need of the individual who was stealing was given as an excuse; in the second pair, the thief knew he could get away with it; in the third pair, the prosperity of the owner whose property was stolen was stressed; in the fourth pair, the negligible worth of the article was mentioned; in the fifth pair, the fact that everyone was doing it was emphasized. Following each pair of stories, students were asked to tell which boy or girl in the stories did the worse thing, and why. The stories were presented as a written test to a total of 184 junior high school students, eighth and ninth graders in a midwestern community, drawn mainly from the lower and middle classes. One hundred and two of these were boys, 82 were girls. Students were told not to write their names on the papers, and the directions accompanying the test were read orally. Papers were collected in such a way that identification was possible. These were the stories:

I

Mary's father had been out of work for some time and there had been no money to buy lunches at school. One day she helped herself to a dime on a neighbor's desk at school. She remembered how much she needed money and thought it would be OK.

Jim's father was very poor and he had no money for school supplies. One day when he was in the Western Union Telegraph Co. where he worked after school, he saw the cash box out on the desk and helped himself to ten cents. He figured he needed it so much it was all right.

Who did the worse thing, Jim or Mary?

Why do you think so?

II

Harry was the last one getting dressed after gym one day and noticed a pair of tennis shoes hanging out of one of the lockers. There

was no one around and so he helped himself to them. He knew most tennis shoes looked alike and that he could get away with them.

Donald worked after school for a large corporation where rubber goods were made. One night when it was quitting time he slipped a pair of rubbers inside his jacket. He knew he would be safe in doing this for no one had seen him.

Who did the worse thing, Donald or Harry?

Why do you think so?

III

Michael worked in a tool and die factory which was a large corporation. In the evenings he worked at home at his work bench. He needed a wrench for his tool kit, and at the factory one day he took a wrench to use at home. He thought that the corporation was prospering and allowed for a certain amount of loss anyway.

Bill was fixing a wagon and he needed a screw driver to work on the wheel. He remembered seeing one on Mr. Walker's lawn. Mr. Walker was the wealthiest man in town, and Bill thought he could easily buy another one. So he took the screw driver from Mr. Walker's lawn.

Who did the worse thing, Bill or Michael?

Why do you think so?

IV

Harriet's neighbor had some boxes piled high with scraps of cloth outside her porch. Harriet needed some cloth to make doll's clothes and so she helped herself. She knew the scraps weren't worth much.

Mary lived near a large factory that manufactured cotton goods. She wanted to make some doll clothes so she took some pieces of material from boxes piled outside the factory. She thought it was all right because they weren't worth much.

Who did the worse thing, Mary or Harriet?

Why do you think so?

V

William worked for a large lumber corporation on Saturdays. There were pieces of lumber piled up in the yard to which the workers often helped themselves. William took some lumber home with him. He thought it was all right because everyone else did it.

Some boys and girls always stopped by the corner grocery store owned by Mrs. Moore in the afternoons to buy candy or soft drinks. They would sometimes pick up things that didn't amount to much

as they walked out. Sarah saw that everybody else did it so she took something too.

Who did the worse thing, Sarah or William?

Why do you think so?

Results

Results will be discussed in relation to the questions raised which this study attempted to answer.

1. To what extent do children differentiate, verbally at least, between stealing from a corporation and stealing from a private individual?

TABLE I

PERCENTAGE OF RESPONSES OF 184 EIGHTH AND NINTH GRADERS FOR EACH OF FIVE PAIRS OF STORIES INVOLVING STEALING FROM A PRIVATE INDIVIDUAL AND FROM A CORPORATION

1P*	1C**	2P	2C	3P	3C	4P	4C	5P	5C
44%	56%	71%	29%	42%	50%	52%	48%	83%	17%

*P — Personal
**C — Corporate

Analysis of the data collected on the tests showed that 52 per cent of the students thought stealing property individually owned was worse than stealing from a corporation. Thirty-six per cent thought stealing from a corporation was worse, while 12 per cent indicated that both offenses were the same.

There was little difference between boys and girls with respect to difference in attitudes toward stealing property individually owned and stealing corporate property. Fifty-four per cent of the boys, as compared with 50 per cent of the girls thought stealing private property was worse; 35 per cent of the boys and 39 per cent of the girls indicated that stealing corporate property was worse, while 11 per cent of both sexes thought there was no difference between the two kinds of offenses.

While answers to the question of which was worse in a pair of stories indicated that a majority of students considered stealing property individually owned to be worse than stealing corporate property, a study of answers to the individual stories revealed some interesting data as can be seen in Table I. In two of the five pairs of stories, attitude toward personal proper-

ty was in striking contrast to attitude toward corporate property. These were pairs II and V. Pair II, it will be recalled, involved stealing tennis shoes and a pair of rubbers; 71 per cent of the students thought stealing the tennis shoes from a fellow classmate to be the worse offense while only 29 per cent considered stealing a pair of rubbers from a large corporation

TABLE II

PERCENTAGES OF REASONS ACCORDING TO CATEGORY WHICH 184 EIGHTH AND NINTH GRADERS GIVE TO EXPLAIN JUDGMENTS ABOUT STEALING FROM A PRIVATE INDIVIDUAL AND FROM A CORPORATION

		Reasons	Percentage
Category	I	Need of the owner	32
	II	Personal vs. corporate	18
	III	Theft not necessary	13
	IV	Possible punishment	12
	V	Habit-forming	7
	VI	Relative worth of the articles	5
	VII	Danger of being caught	4
	VIII	Carelessness of personal owner	3
Miscellaneous			5

to be the worse. In Pair V, involving stealing unnamed articles of negligible value from a store owned by an individual and stealing scrap lumber from a lumber corporation, 83 per cent thought the first offense the worse while only 17 per cent mentioned stealing the scrap lumber as the worse. Yet in Pair IV, there was only a four per cent difference between the attitude expressed toward private property and corporate. Further comment on these differences will be reserved for a later section of this report.

In two of the five pairs of stories, stealing corporate property was considered worse than stealing property privately owned. In Pair I, 44 per cent of the children considered stealing a dime from a classmate to be the worse offense, while 56 per cent of the children considered stealing from Western Union to be worse. In Pair III, 42 per cent of the students said that stealing a tool from an individual was the worse offense while 58 per cent considered stealing from a corporation was worse. Here, again, comment on these differences will be reserved for a later section of this report.

2. What are the reasons children give for excusing some acts of stealing and condemning others?

3. Of the various rationalizations children give for stealing, which are most frequently employed?

4. What do children reveal concerning the relative or absolute nature of their moral judgments in the test situations presented?

It will be recalled that after each pair of stories on the test children were asked the why of their decision as to which of the two offenses was the worse. It was hoped that not only might this shed light on some of the reasoning behind children's choices, but also reveal something of the nature of their moral development. Therefore, analysis was made to see whether the majority of judgments expressed was amoral in character, or whether it showed an absolute or a relative position with regard to what was right and wrong.

The reasons which students gave for their choices were categorized. Two workers independently classified the responses of the children under the categories presented, and an agreement of 90 per cent was found. The categories will be discussed in the order of the frequency with which they were mentioned. Results by category are shown in Table II.

Category I—Need of the owner

The largest percentage of responses, 32 per cent, fell under the category of need of the owner. This category included responses such as:

The neighbor needs the scraps for a quilt.
The lady needs the stuff to make a living.
He might need the tool to fix something.
The company needs the lumber for their business.

Of the responses in this particular category, the personal property owner was felt to have the greater need. Where need was mentioned as the rationalization for stealing, 76 per cent of the responses favored the personal property owner. There were some interesting answers favoring the company, however. Where the company was named as needing the object it was usually because the theft interfered with the manufacturing process. For this reason, stealing tools or raw materials was very bad, much worse than stealing finished goods, because it might interfere with the production of goods and might even throw a man out of work because he wouldn't have the proper tool with which to do his job. This was true in Pair III where more responses favored the corporate owner because taking a tool interfered with production, and Pair IV where almost as large a number of responses favored corporate as compared with private ownership because the scraps of cloth left outside the factory were probably needed by the company in manufacturing cotton goods.

Category II—Personal vs. corporate

The second largest percentage of reasons—18 per cent—included reasons which contrasted personal ownership with corporate ownership, in almost

every instance to the benefit of the personal owner. Excuses for condoning stealing from a corporation were usually expressed in such terms as these:

The corporation makes allowances for stealing; a person doesn't.
The company had plenty; Mr. Jones had only one tool.
A company can always get more; a person might not.
Stealing from a company isn't stealing from anyone.
Stealing from a friend is worse than stealing from a company.
He's working for the company so he has a right to take it.

Category III—Theft not necessary

This very interesting category accounted for 13 per cent of the reasons students gave for excusing theft. It was applied in 58 per cent of the cases to stealing from private property. Implied in the explanations was the idea that it is always possible in our culture to get what one wants by legitimate means. One could work for it, or wait until one's father had a job, or ask the owner for it, or buy what was needed, or decide the particular object wasn't necessary.

Category IV—Possible punishment

The fear of more severe punishment was given in 12 per cent of all cases for stealing from corporate property and in 42 per cent of the cases for choosing one kind of theft as against another. In most all cases, punishment by a coporation was more to be feared than punishment by an individual. A corporation could "fire you," "make you do time," "send you up for a stretch," "fine you or your parents hundreds of dollars," or so the students said. Where a well-known and powerful company was specifically named, as was Western Union in the first pair of stories, fear of punishment seemed to be stronger. To be feared in the case of stealing from an individual was one's reputation; one would be punished by losing face with one's group.

Category V—Habit-forming

Seven per cent of the responses condemned a particular kind of stealing as being habit-forming. Stealing personal property was considered to be more habit-forming than stealing corporate property, in the majority of cases where habit-forming was mentioned. This was particularly true in the case of stealing tennis shoes left outside the locker, and in stealing things from a small grocery store.

Category VI—Relative worth of the articles

Category VII—Danger of being caught

Category VIII—Carelessness of personal owner

In these three categories, percentages of total responses were small. Five per cent mentioned relative worth of the articles; four per cent were con-

cerned about being caught in the act; three per cent expressed a rather cynical attitude that if the owner were careless enough to leave personal property hanging around, he deserved the loss.

Conclusions

An attempt will be made to pull together some of the findings with regard to junior high school students' attitudes toward stealing private property as compared with stealing corporate property.

1. The generalized factor of who owns property—corporate vs. private—would appear to influence children's judgments about stealing a particular item.

2. Where children condone stealing corporate property rather than private, two factors are in evidence. One is that many children of junior high school age have a strong fear of large corporations; they believe that corporations do more checking on supplies, and that they punish theft more severely. Where a corporation was specifically named—as in the case of Western Union—the prestige and accompanying fear of this company was a powerful deterrent to stealing. The other factor is that a theft which supposedly interferes with production, as in the case of a tool, is considered to be more serious than stealing manufactured goods.

3. Children give a variety of reasons for condemning one kind of theft and condoning another. The reason most frequently given had to do with regard for the owner, either for his need for the article stolen or for his feelings. This need or these feelings were most frequently attributed to a private owner rather than to a corporate owner. This reason represented an application of the Golden Rule and in that respect might be considered to be of a high moral nature.

4. A small percentage of students of junior high school age (12 per cent) maintain an absolute standard with regard to stealing. For these students stealing is stealing; it is never right under any circumstances to take property belonging to another. Their strict consciences make them reject relativism in the field of morals.

5. Another group of students might be considered to be amoral with regard to attitude toward property. These are the students who indicate an underdevelopment of conscience in that they would refrain from stealing only if there were a possibility of their being caught and punished; that it is all right to steal if the owner of the property is careless enough to leave it lying around; that stealing articles that are not considered to be of much value is not really stealing. Twenty-four per cent of the reasons given by children might be classified amoral in this way.

6. The remainder of the students reveal the relative nature of their moral judgments by their responses to the socio-moral judgment test. More than 66 per cent of the reasons were of this nature.

Summary

A test of judgment about stealing corporate property as compared with private property was given to 184 eighth and ninth graders. The test consisted of five pairs of stories describing acts of stealing, and children were asked to state in each case which was the worse offense. Results showed that children consider stealing private property more serious than stealing corporate property except where reprisal by a strong, powerful company was feared, or where the theft slowed up production. According to the classification used by the writer, almost a quarter of the reasons children give for stealing are amoral; more than a tenth of the children have very strict consciences with regard to stealing, and approximately two-thirds are relativists in their moral judgments.

Certain implications as well as reservations regarding this research should be pointed out. First of all, it should be clearly recognized that children's judgments regarding stealing are not an indication of what their actions in a particular situation might be. No claim is made here that children's responses to the test stories predict what children will do. Indeed, there is a likelihood that the reasoning of some students, "If you work for a company it's OK to take things from it" might make for more acts of stealing as these same students go to work in industry.

A second reservation has to do with the fact that over half of the students involved in this study were lower-class children. Further investigation involving more upper-class students and analyzing the results from a class viewpoint needs to be done. It may be that lower-class children present different reasons for judging an act of stealing than middles and uppers because lowers have greater reason to fear powerful companies and to fear losing a job. Uppers may present more traditionally moral reasons in giving their judgments about stealing.

What this study implies for the teaching of moral values is not quite clear. Certainly it would appear that home, church and school need to recognize the distinction being made by some children between private and corporate property. Yet in the interviews with students, this writer had the feeling that those who responded to the test items in absolute terms—"Stealing is stealing under all circumstances"—did not have the final answer. This again is in the nature of speculation, but reports by those who knew the "absolutists" were agreed that these were the students who in other aspects of their lives revealed rather rigid personalities. A return to an acceptance of fixed and eternal truth under modern conditions of living is neither feasible nor practical. In the writer's opinion, research on what are the conditions under which modern man can be moral is sorely needed.

Bibliography

(1) Beaglehole, Ernest. *Property, A Study in Social Psychology.* London: George Allen and Union, Ltd., 1931.

(2) Eberhart, J. C. Attitudes toward Property: A Genetic Study by the Paired Comparison Rating of Offenses, *J. Gen. Psychol.*, 1942, 60, 3-35.

(3) Hartshorne, H. and May, M. A. *Studies in Deceit.* (Book I) New York: Macmillan, 1929.

(4) Jones, Alfred. *Life, Liberty and Property.* New York: Lippincott, 1941.

(5) Jones, Vernon. Character Development in Children. In Carmichael, Leonard (Ed.), *Manual of Child Psychology.* New York: John Wiley & Sons, Inc., 1946.

(6) Kant, Immanuel. *Critique of Practical Reason.* New York: Longmans, Green & Co., 1909.

(7) Kardiner, Abram, and Associates. *The Psychological Frontiers of Society.* New York: Columbia Univ. Press, 1945.

(8) Marx, Karl. *Capital.* New York: The Modern Library, 1932.

(9) Piaget, Jean. *The Moral Judgment of the Child.* New York: Harcourt, Brace & Co., 1932.

(10) Sorokin, Pitirim A. *Society, Culture and Personality.* New York: Harper, 1947, p. 129.

(11) Waites, J. A. An Inquiry into the Attitudes of Adults towards Property in a Lancashire Urban Area, *Brit. J. Psychol.*, 1945, 36 : 42.

A FACTORIAL STUDY OF THE FELS PARENT BEHAVIOR SCALES

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The application of methods of multiple factor analysis to problems of the description of personality at the adult and near-adult level is beginning to give a clearer picture of the basic variables involved, and their interrelations. The work of Thurstone, Cattell, Guilford, and many others is resulting in a definition of personality variables at the adult level which seem likely to be of central importance for future studies of personality development throughout childhood, and for studies of the effects of various methods of treatment during childhood on eventual personality makeup. Cattell's (4) recent book in particular, with its extensive collation of results from a wide variety of factor studies, indicates the prospect of the discovery of basic personality variables which will receive the general acceptance now accorded some variables in the ability area. Further work on methods of measurement, on techniques of analysis, and on stability and change of behavior at the adult level, can be expected to result in a set of some twenty or thirty variables or "traits," in terms of which a comprehensive and meaningful cross-sectional description of personalities in any specific population of adults can be given.

For a population of children, prediction of adult status on this set of descriptive variables can be made in two ways: (1) by the extrapolation forward in time of measured characteristics of the children, and (2) by use of the total complex of extra-child variables which may be related to personality development, such as characteristics of the parents, of the culture, the neighborhood, the educational system, etc. For prediction of the future development of intelligence, the first of these methods is most effective, at least from the age of six years. For personality development, this forward extrapolation has proved less nearly adequate than in the case of intelligence, and more attention is consequently directed toward the complex of background variables, which includes all the extra-individual influences on behavior.

The extra-child variables which are potentially predictive are both numerous and complexly interrelated. They may be considered as forming a single total set, which, when properly weighted for each adult trait, will give optimal predictions. The intercorrelations of these independent variables will, if known, constitute the matrix of predictor variables in a multiple correlation setting, where the predictants are the dependent variables. Experience in other predictive situations of this type indicates that the use of factor analysis procedures on parts of the matrix of predictor variables

will produce gains comparable to those obtained in the analysis of personality traits.

Identification of the factors present, which will usually be definitely smaller in number than the initial set of variables, and the determination of their structure, simplifies the making of estimates concerning the behavior of the total set of variables in a multiple correlation setting. Such study frequently discloses the extent to which a set of measures gives adequate coverage of the predictor area concerned. It is frequently found that variables which were intended to measure one thing are actually measuring something else, which is already covered by other measures, with a consequent over-coverage of some areas and a corresponding inadequacy of coverage in others. The conceptual simplification resulting from a reduction in the number of variables may also suggest new and additional variables which were not included in the original scheme. In either of these cases, the development and use of new measures is indicated, if maximal prediction is to be obtained.

Within the total pattern of variables related to personality development, the sub-set relating to various aspects of family life has been widely recognized as important. However, little effort was directed toward the systematic description of these family variables prior to the series of studies (2, 3, 5, 6) from the Fels Research Institute. Using a rating scale developed by Champney (5, 6), a home visitor rated each home in a population whose children were also being studied in other ways, on thirty items of parent behavior, parent-child relationships, home atmosphere, etc. Intercorrelations of these thirty variables for 125 cases, all rated by the same home visitor, are given by Baldwin, Kalhorn and Breese (2), who also present an informal classification of variables into clusters or syndromes.

In common with other studies in which a visitor has observed children and parents in home settings, these data are subject to the limitation that they depend on the observations of only one person. There would be some variation in the resulting statistical values if a different person had made the ratings. There is also some indication of variations in item intercorrelations with age of the children (3). While these limitations are recognized, it has seemed desirable to make a formal factor analysis of these intercorrelations (2, pp. 12-13). This should result in an improved definition of the basic variables involved, and should assist in estimating how the total set of thirty scale items would behave against any set of criteria in multiple correlation. It should also give an improved basis for judging adequacy of coverage of the parent-family region so far as predictor variables are concerned.

The population of families studied is described (2) as somewhat above average in intelligence, economic status, and educational experience; however, it includes some families of less than average educational and economic level. Indications are that about twenty per cent of the fathers are engaged in college teaching, and that about thirty per cent are farmers; the

remaining half are in other occupations. This is not, of course, a representative sample of any total population, but it is definitely broader in range than most populations used in personality studies. Its chief peculiarity is an over-loading at the professional end of the socio-economic scale.

The Fels Parent Behavior Scales were developed by Champney (5, 6) in an attempt to cover what he called the "eight basic categories or 'armchair factors' " of parent behavior. These eight "armchair factors" may be briefly described as follows:

1. *Freedom—Arbitrary Control.* Child free to act *vs.* child restrained by autocratic control.

2. *Stimulation—Neglect.* Child constantly subject to attention, affection, etc. *vs.* child neglected, ignored, etc.

3. *Babying—Adulting.* Everything done for child; treated as baby *vs.* encouraged to do things for himself, treated as adult.

4. *Maladjusted—Well-adjusted.* Home is erratic, discordant, tense, etc. *vs.* home is harmonious, relaxed, pleasant, etc.

5. *Approving—Deprecating.* Child typically praised, etc. *vs.* child is typically blamed, disapproved, etc.

6. *Rational—Non-rational.* Attitude toward child is logical, intellectual, etc. *vs.* attitude is expedient, emotional, etc.

7. *Training—Free Growth.* Parent pushes child for rapid development by teaching, training *vs.* parent makes no effort to accelerate child's development.

8. *Socialized—Individualized.* Home is characteristically friendly, sociable, etc. *vs.* home is characteristically reclusive, isolated; characterized by privacy, private property, etc.

Rating scales for thirty types of family characteristics were developed from these eight categories. Each scale has either five or six cue statements defining the variable to be rated. In the present study, the directions of certain scales were reversed by changing the signs of their correlations with other items, to maximize the number of positive elements in the correlation matrix. Items so reversed were 3, 9, 10, 11, 16, 17, 18, 22, 28; all these as presented in the list below have "non" prefixed to them, and the defining terms shifted accordingly. The total list of scales is as follows (5).

1. Adjustment of home: well-adjusted—maladjusted
2. Activeness of home: active—inactive
3. Non-discord in home: harmony—conflict
4. Sociability of family: expansive—reclusive
5. Coordination of household: coordinated—chaotic
6. Child-centeredness of home: child-centered—child-subordinated

7. Duration of contact with parent: extensive contact—brief contact
8. Intensity of contact: vigorous—inert
9. Non-restrictiveness of regulations: freedom—restriction
10. Non-readiness of enforcement: lax—vigilant
11. Non-severity of actual penalties: mild—severe
12. Justification of policy: rational—arbitrary
13. Democracy of policy: democratic—dictatorial
14. Clarity of policy: clear—vague
15. Effectiveness of policy: successful—unsuccessful
16. Non-disciplinary friction: concordant—contentious
17. Non-readiness of suggestion: non-suggesting—suggesting
18. Non-coerciveness of suggestion: optional—mandatory
19. Accelerational attempt (pushing): acceleratory—retardatory
20. Babying: overhelps—withholds help
21. Protectiveness: sheltering—exposing
22. Non-readiness of criticism: uncritical—critical
23. Favorableness of criticism: approval—disapproval
24. Readiness of explanation: satisfies curiosity—thwarts curiosity
25. Solicitousness for child's welfare: anxious—nonchalant
26. Acceptance of child: devotion—rejection
27. Understanding of child's problems: keen—obtuse
28. Non-emotionality toward child: objective—emotional
29. Affectionateness toward child: affectionate—hostile
30. Rapport with child: close rapport—isolation

Seven factors were extracted by Thurstone's multiple-group method (8); the factor loadings so obtained are shown in Table 2. After the extraction of the seventh factor there was only one residual (.11) larger than ±.10, and there was no discoverable patterning in the residuals which fell within that range, so no further extraction was made.

These axes were rotated to an oblique simple structure by the single-plane method. The complete rotated factorial matrix is given in Table 5. A summary of the rotated factor matrix is shown in Table 1, which contains all factor loadings of .30 or above.

The transformation matrix is shown in Table 3, and the matrix of correlations between the factors is given in Table 4.

Interpretation

In the following discussion of the interpretation of each factor, all variables which have loadings of .30 or more, regardless of sign, are listed in order of size of loading. Variables with loadings over .50, which are referred to as "defining variables," are described in some detail. All but two of these have no loading as high as .30 on any other factor, so that they are predominantly one-factor variables in the present context.

TABLE 1
SUMMARY OF FACTOR LOADINGS

		I	II	III	IV	V	VI	VII
Factor I: Concern for child								
7	Contact duration	69						
21	Protectiveness	69						
20	Babying	63						
6	Child-centered	57						
25	Solicitous	53				—36		
26	Acceptance	39			31			
4	Family sociable	—37				70		—41
9	Non-restrictive	—37	32	35		32		
Factor II: Democratic guidance								
12	Justification		64					
13	Democracy		62					
24	Explanation		62					
18	Non-coercive		61					
27	Understanding		43			33		
14	Clarity policy		38					
19	Accelerational		36				36	
23	Favorable criticism		34					
28	Non-emotional		33		33	—35		
9	Non-restrictive	—37	32	35		32		
Factor III: Permissiveness								
11	Non-severity			61				
10	Non-enforcement			51				
9	Non-restrictive	—37	32	35		32		
Factor IV: Parent-child harmony								
16	Non-friction				63			
15	Effectiveness				61			
3	Home non-discord				42	31		
22	Non-criticism				41			33
30	Rapport				40			
28	Non-emotional		33		33	—35		
26	Acceptance	39			31			
Factor V: Sociability-adjustment of parents								
4	Family sociable	—37				70		—41
1	Home adjustment					55		
25	Solicitous	53				—36		
28	Non-emotional		33		33	—35		
27	Understanding		43			33		
29	Affectionate					32		
9	Non-restrictive	—37	32	35		32		
3	Home non-discord				42	31		
Factor VI: Activeness of home								
2	Home active						76	
5	Coordination						53	
19	Accelerational		36				36	
Factor VII: Non-readiness of suggestion								
17	Non-suggestion							58
4	Family sociable	—37				70		—41
8	Intense contact							—34
22	Non-criticism				41			33

I. The variables with loadings above .30 on the first factor are as follows:

7. Duration of contact with parent: extensive contact—brief contact ..... .69
21. Protectiveness: sheltering—exposing ..... .69
20. Babying: overhelps—withholds help ..... .63
6. Child-centeredness of home: child-centered—child-subordinated ..... .57
25. Solicitousness for child's welfare: anxious—nonchalant .... .53
26. Acceptance of child: devotion—rejection ..... .39
4. Sociability of family: expansive—reclusive .....—.37
9. Non-restrictiveness of regulations: freedom—restriction ....—.37

An examination of the cue statements of the defining variables will assist in interpreting this factor. "Duration of contact with parent" refers simply to the estimated daily amount of actual contact with the child, ranging downward from "Entire waking day together" to "Quarter hour per day together." Cue statements at the ends and from the middle of the scale for the other four items are as follows.

21. Tends to shelter child from every imaginable slight discomfort or difficulty.	Lets child face own obstacles when there is no danger of lasting harm.	Allows child to be exposed to major hazards, dangers, problems, suffering, oblivious to hazards, or deliberately refrains from protecting child.
22. Continually helping child, even when child is fully capable and willing.	Helps when needed, but not when child can get by alone.	Leaves child alone to solve even major problems, often refusing aid when requested.
6. Whole household revolves around child; many major sacrifices for child's trivial comforts.	Child gets proportional consideration; is as often disregarded as sacrificed for.	Household organized around interests of other members. Child definitely neglected even in essential matters.
25. Given to severe, irrational anxiety on largely imaginary grounds. Readily panicked.	Somewhat solicitous, but minimizes hazards. Frequently shows concern, but without losing perspective.	Nonchalant and seemingly unconcerned even in major matters. So unsolicitous as to appear neglectful or irresponsible.

For three of these items, 21, 20 and 6, the item intercorrelations are almost as high as the correlations between successive ratings on the same item, which indicates that, as rated, they are practically parallel measures of the same thing. The content of the set of all five defining items seems very close both to the second of Champney's original categories, "Stimulation—Neglect," which contrasted situations in which "Child constantly subject to at-

tention, affection, suggestion, concern, action" with "Child left to his own devices, neglected, ignored, under-stimulated," and to the third category, "Babying—adulting." These same items appear together in one of Baldwin, Kalhorn and Breese's clusters which they call "Indulgence."

This seems clearly to be related to sorts of behavior commonly considered in relation to "security—insecurity" within the family, and, at the extremes of the scales, to concepts of "rejection" and "overprotection." A common thread running through these variables is concern for the child with accompanying actions, from overconcern, overprotectiveness, overanxiety, etc., through more moderate degrees of concern to complete indifference, neglect, etc. It is one of the two factors on which the variable "Acceptance of child" has a loading over .30. It seems to have more of an emotional component than the term "stimulation" would imply, and the defining statements at the upper end seem clearly to indicate a more positive intervention in the child's affairs than would be indicated by "indulgence." Although it does not quite cover the "action" part of these variables, this factor will be called "Concern for the child."

Both extremes of these variables, intense overconcern and neglectful indifference, are frequently taken to indicate some type of parental maladjustment. To the extent to which ratings at either end of these scales were associated with "low" ratings on such variables as "I. Adjustment of home," the relation between the variables and the rating on adjustment would be non-linear, and a correlation coefficient would not indicate accurately the degree of relationship. Insofar as the variables of this factor are parallel measures, their interrelations would still be linear, so that the main effect of non-linearity of relationship with variable 1 and other items would be to produce a lower value for the correlations between factors than would otherwise be obtained.

II. The variables with loadings above .30 on the second factor are as follows:

12.	Justification of policy: rational—arbitrary	.64
13.	Democracy of policy: democratic—dictatorial	.62
24.	Readiness of explanation: satisfies curiosity—thwarts curiosity	.62
18.	Non-coerciveness of suggestion: optional—mandatory	.61
27.	Understanding of child's problems: keen—obtuse	.43
14.	Clarity of policy: clear—vague	.38
19.	Accelerational attempt (pushing): acceleratory—retardatory	.36
23.	Favorableness of criticism: approval—disapproval	.34
28.	Non-emotionality toward child: objective—emotional	.33
9.	Non-restrictiveness of regulations: freedom—restriction	.32

Cue statements for the defining items are as follows. Since they do not show quite the same type of transition from too little to too much that the items of the first factor did, only the upper and lower cues are listed.

12. Goes out of way to show child practical reasons behind requirements and suggestions, even in emergencies or where explaining is difficult.	Never explains policies to child. Handles discipline in very arbitrary fashion, expecting child never to question "why."
13. Endures much inconvenience and some risk to child's welfare in giving child large share in policy forming. Consults with child in formulating policies wherever possible.	Dictates policies without regard to child's wishes. Never consults child when setting up regulations.
24. Never too busy to answer child as adequately as possible. Anticipates questions. Encourages curiosity with willing explanations.	Thwarts child's curiosity. Actively discourages questions with "Too busy," "You're too young to know," "Just because," etc.
18. Commands resorted to only in life and death emergencies. Parent goes out of way to avoid coercion in his suggestions to child.	Efforts to control child take form of peremptory orders, to be obeyed at once, even in trivial matters.

The intercorrelations of the four defining variables are almost identical with the correlations between successive ratings on the same item, which indicates that, as rated, they are essentially parallel measures of the same thing. These items represent a second basic normative concept of child development, the positive attempt to encourage independence of thought and action in the child. A description of this general concept is given by Goodenough (7, p. 676).

> The second need of the child is opportunity for *unhampered development*. This is not to say that he must not know restraint, that he be allowed to run wild without design or guidance. It means that restriction upon his acts shall not be imposed erratically or without reason, that he be allowed to make his own mistakes as far as this is at all consistent with reasonable attention to his own health and safety. ... He must be allowed to experiment widely in order that he may choose wisely. It means that he shall not be hampered ... by unwise indulgence. It means the encouragement of initiative and independence, learning to do for himself and fend for himself.

Such behavior is in the area of Champney's first category, "Freedom—Arbitrary Control" and of the sixth, "Rational—Non-rational." These items occur in one of Baldwin, Kalhorn, and Breese's clusters called "Democracy in the Home." The cue statements also seem closely related to the definition of authoritarian—democratic (but not laissez-faire) methods of social control developed by Lewin and Lippitt.

It should be noted that the cues at the "democracy" end of all four scales emphasize the positive actions taken by the parent to explain the reasons

for rules, to satisfy curiosity, to encourage the development of independence, and to involve the child in family policy-formation.

This behavior differs from passive permissiveness, which characterizes the variables of the next factor. The authoritarian—democratic—laissez-faire triad splits into two distinct factors in this analysis: democratic—authoritarian and laissez-faire—authoritarian. To emphasize the positive guidance aspects of the present factor, it will be called "Democratic guidance."

III. The variables with loadings above .30 on the third factor are as follows:

11. Non-severity of actual penalties: mild—severe ..... .61
10. Non-readiness of enforcement: lax—vigilant ..... .51
9. Non-restrictiveness of regulations: freedom—restriction .... .35

Cue statements at the ends and in the center of the scales for the first two items are given below.

11. Most flagrant misbehavior provokes no penalty more severe than weak verbal remonstrance. Penalties are so light that their potency for the child is negligible.	Moderate penalties. Severe enough to have definite motivating power for the child; but not so severe that the child is over-inhibited, severely frightened, or deeply resentful.	Severe penalties, frequently stimulating child to dread, terror, or deep personal resentment.
10. Extremely lax. Disregards obvious misbehavior. Enforces regulations only when pressed by the strongest motives or the severest circumstances.	Moderately firm. Strict about important requirements and prohibitions; but rather lax with minor violations, especially when they are not an issue at the moment.	Eternally vigilant. Goes out of way to discover and discipline misconduct. Often pounces before lapse occurs.

These cue statements range from passive permissiveness (laissez-faire) to an "authoritarian" harshness of enforcement of regulations. That the permissiveness is not equivalent to parental indifference is indicated by the fact that variable 29, "Affectionateness," has a loading of .28 on this factor. This is a second factor in the area "freedom—arbitrary control" which is related to, but definitely distinct from, the previous factor, "Democratic guidance." It will be called "Permissiveness."

IV. The variables with loadings above .30 on the fourth factor are as follows:

16. Non-disciplinary friction: concordant—contentious ..... .63
15. Effectiveness of policy: successful—unsuccessful ..... .61
3. Non-discord in home: harmony—conflict ..... .42
22. Non-readiness of criticism: uncritical—critical ..... .41

30. Rapport with child: close rapport—isolation ..... .40
28. Non-emotionality toward child: objective—emotional ..... .33
26. Acceptance of child: devotion—rejection ..... .31

Cue statements from the ends and from the middle of these scales are given below for the two defining variables.

16. Disciplinary conflicts are exceedingly rare. Either the child conforms docilely, or the parent tranquilly permits lapses. Friction extremely mild or absent.	Parent invokes penalties, child resists, etc. rather frequently, but harmonious adjustment in disciplinary situations is somewhat more usual. Friction moderate.	Situations to which regulations or standards apply are always characterized by overt parent-child conflict. Parental demands resisted. Friction frequent and marked.
15. Child conducts himself in accord with the parents' standards in every respect. Parents' policy achieves its goal.	Policy predominantly successful, although it fails in many instances.	Child's overt behavior is entirely at odds with standards implied in policies of parent. Policy completely unsuccessful.

The correlation between ratings on these two items is as high as the correlations between ratings on the same item at different times, which indicates that they are essentially parallel. They indicate the effectiveness of parental procedures as judged by the parents; they thus refer both to the behavior of the child and to the satisfaction of the parent with that behavior. They include both the amount of conformance of the child's behavior to parental standards, and the type of standards to which the child is expected to conform. The correlation between this factor and the second factor is .63; it is thus closely related to democratic guidance procedures. It is also positively related, though not so highly, to the "Concern" and "Permissiveness" factors. The next three items on this factor are "Non-discord in the home," "Non-readiness of criticism," and "Rapport between parent and child." It seems that an appropriate name would be "Parent-child harmony."

V. The variables with loadings above .30 on the fifth factor are as follows:

4. Sociability of family: expansive—reclusive ..... .70
1. Adjustment of home: well-adjusted—maladjusted ..... .55
25. Solicitousness for child's welfare: anxious—nonchalant ....—.36
28. Non-emotionality toward child: objective—emotional .....—.35
27. Understanding of child's problems: keen—obtuse ..... .33
29. Affectionateness toward child: affectionate—hostile ..... .32
9. Non-restrictiveness of regulations: freedom—restriction .... .32
3. Non-discord in home: harmony—conflict ..... .31

Cue statements for the ends of the scales of the first two items are given below.

4. Family constantly active socially; always seeking new contacts; eager and uninhibited mixers.	Family resents social advances from outside the household; never mixes socially.
1. Exceedingly well-adjusted. Characterized by pleasant cooperation, security, and full satisfaction throughout.	Extremely maladjusted; torn with conflict, repression, and insecurity.

These two items are not so closely parallel in their behavior as are most of the other sets of defining variables, and it is possible that one or more additional factors would emerge with the inclusion of additional measures of variables of this type. Negative ends of the two scales represent in one item extreme social withdrawal, and in the other excessive conflict, etc. These have something in common, but are not exactly parallel. The same is true for the positive cue statements. The item intercorrelation between these is .59, which is markedly below the correlations for each item on successive ratings. To recognize that these defining variables are less similar than most of the other sets, and to give emphasis to each of these defining items, this factor will be called "Sociability-adjustment of the parents."

It is interesting that the item with the next highest loading on this factor is "Solicitousness," (—.36).

VI. The variables with loadings above .30 on the sixth factor are as follows.

2. Activeness of the home: active—inactive ..... .76
5. Coordination of household: coordinated—chaotic ..... .53
19. Accelerational attempt (pushing): acceleratory—retardatory . .36

Cue statements from the ends and the middle of the scale for the first two items are given below.

2. Home extremely bustling, busy, excited, tense.	People move, talk, and work without haste, but with some dispatch. Home alert, but not hypertense.	Home poky, lackadaisical, lazy, slow-moving, procrastinating.
5. Extremely effective management. Model of efficiency. Long-range planning, flexibly executed. Confusion unknown.	Fair coordination. Considerable disorder, but can usually find things. Buying inefficient, but meals fairly adequately planned. Sometimes off schedules, but never miss trains.	Chaotic, disorganized. Nothing happens on schedule. No planning. Equipment in tangled scramble. Confusion reigns, even in essentials.

This is a second "home" factor, which seems to be primarily a matter of the drive and effectiveness of the parents, without specific reference to children. These variables were listed in a cluster by Baldwin, Kalhorn and Breese; so far as is known, it has not previously been discussed formally as a family variable. It will be called simply "Activeness of the home," after the variable with the highest loading.

VII. The variables with loadings above .30 on the seventh factor are as follows:

17. Non-readiness of suggestion: non-suggesting—suggesting .. .58
4. Sociability of family: expansive—reclusive .....—.41
8. Intensity of contact: vigorous—inert .....—.34
22. Non-readiness of criticism: uncritical—critical ..... .33

The end and middle cue statements for variable 17 are given below.

17. Parent not only consistently avoids volunteering suggestions, but tends to withhold them when they are requested, or when they are the obvious reaction to the immediate situation.	Parents' tendency to allow child's initiative full scope is about equal to tendency to interfere by making suggestions.	Parent continually attempting to direct the minute details of the child's routine functioning, and "free play" as well.

The instructions for this item also direct "This does not apply to routine regulations and their enforcement. Rate only where there is opportunity for suggestion. Note that 'suggestion' is defined broadly, including direct and indirect, positive and negative, verbal and non-verbal, mandatory and optional."

This factor, which is not so well determined as the previous ones, seems to be just what the names of the two items with positive loadings would indicate, a non-readiness to offer suggestions and criticism. It seems to represent a verbal passivity—verbal activity scale. In the absence of additional defining variables, it will simply be named for the item with the highest loading, "Non-readiness of suggestion."

The eighteen items which had loadings of .50 or more on some factor have been discussed in detail as defining variables. The factorial composition of the remaining twelve items can be seen in Table 1, Summary of Factor Matrix, which shows loadings of .30 or more, and in Table 5, Rotated Factor Matrix, which shows all loadings. The factorial composition of some of these "non-defining" variables is interesting. Item 19, "Accelerational attempt," has loadings of .36 on each of the two factors, "Democratic guidance" and "Activity of the home." Item 26, "Acceptance of child," has loadings of .39 on the "Concern" factor and .31 on the "Harmony" factor. Item 9, "Non-restrictiveness of regulations," has loadings of —.37 on "Concern," .32 on "Democratic guidance," .35 on "Harmony," and .32 on "Sociabilty-adjustment," which indicate that it is factorially complex. Item 27, "Understanding," has loadings of .43 on "Democratic guidance" and .33 on "Sociability-adjustment."

Interrelations of the Factors

The correlations between the primary factors are shown in Table 4. Examination of this indicates that the first four factors, which relate directly to parent-child relations, have positive intercorrelations between .34 and .38

except for the correlation between the second and fourth factors, which is .63. This has several implications.

a. A single-variable study of the effect of any one of these factors on any specific form of behavior would include, to a substantial extent, the effects of all of them, and it would be difficult to draw accurate inferences as to causal influence from such a study.

b. In a multiple-correlation situation, each of them could contribute, depending on the relative size of their correlations with the criterion, but the combined contribution would be less than would be the case if their intercorrelations were closer to zero.

c. There is some indication of a "general goodness" of parent-child relations running through the four factors.

The relations between these four factors and the last three are also of some interest. The correlations of the "Concern" factor with "Non-readiness of suggestion" is —.36. The correlation of the "Democratic guidance" factor with "Sociability-adjustment" is .32. The correlation of "Permissiveness" with "Activity of the home" is —.36. These are the highest of this particular set of correlations.

Discussion

When the seven factors, in terms of which the thirty original variables are expressed, are considered in terms of their coverage of the family as a source of variables for the prediction of personality outcome generally, it seems apparent that additional measures will be needed. There are, of course, many other potentially relevant variables besides those of the family. However, the set of parent practices does not exhaust the information which can be obtained from the family situation. It is frequently recognized in discussions of parental practices that a discussion of what a parent does, without a consideration of *who* the particular parent is, may lead to somewhat artificial results. The problem of the relations between the types of behavior, practices, etc., which define the seven factors of this study and the intelligence level and personality characteristics of the parents involved, is an interesting one. Some relationships are indicated in reports of the relations between parent practices and socio-economic status. The use of reasoning as a technique of control by parents, has been found (Anderson, 1) to vary significantly with socio-economic status, and thus also, by inference, with intelligence level of parents. Variables defining the "Democratic guidance" factor were found present much more often among faculty families than among farm families (2). It seems likely that a systematic exploration of the personality traits of persons who are parents will both add significantly to the set of predictor variables, and lead to a substantial simplification of the total prediction problem, along the following lines.

If, as is sometimes done in multiple correlation work, that predictor with the highest correlation with the criterion is selected as the first variable, to

which others are to be added systematically in the predictor matrix, it is frequently found that this first variable is effective enough to make it something of a task to find additional variables which will contribute substantially to the prediction. For example, one such situation is the prediction of academic scholarship, where intelligence or some similar combination of ability measures is treated as the first variable. Another such situation is the prediction of the terminal intelligence level of children from the total set of background and treatment variables. When, for a population of children raised by their own parents, parental intelligence level is taken as the first predictor variable, the finding of additional variables which will augment this prediction has not been easy to do.

In attempting to predict adult status on any given personality characteristic from background and treatment variables, it seems possible that the measure of that same characteristic in the parent may prove to be the most effective first variable in the predictor matrix. This possibility will be discussed more fully in a separate paper. If it should be found to hold for most or for a substantial number of characteristics, the predictive simplification which would result is easily apparent. In any event, these direct parent-offspring trait correlations seem certain to occupy prominent places among the variables predictive of personality outcome, along with parent practices and factors from outside the family situation.

Summary

1. A multiple factor analysis was made of the intercorrelations between the thirty scale items of the Fels Parent Behavior Scales, as reported by Baldwin, Kalhorn and Breese, to find the basic factors present and to determine their intercorrelations. Seven factors were found adequate to account for the original correlations. Five of these refer to parent-child relationships, and two to characteristics of the parents without specific reference to the children.

2. The prospective behavior of these family variables in the multiple-correlational prediction of the development of personality characteristics is discussed, in the light of the seven factors and their interrelations. Consideration of the relations between parent practices and other characteristics of parents leads to the suggestion that the direct measurement of a personality trait of parents may be the most effective single predictor of eventual status in that trait for offspring.

References

(1) Anderson, J. E. (Chairman) *The Young Child in the Home.* (White House Conference on Child Health and Protection). New York: D. Appleton-Century, 1936.

(2) Baldwin, A. L., Kalhorn, J. & Breese, F. H. Patterns of Parent Behavior. *Psychol. Monogr.*, 1945, 58, No. 268, 1-75.

(3) BALDWIN, A. L. Differences in Parent Behavior Toward Three- and Nine-Year-Old Children. *J. Personality*, 1946, 15, 143-65.

(4) CATTELL, R. B. *Description and Measurement of Personality*. Yonkers: World Book Co., 1946.

(5) CHAMPNEY, H. The Measurement of Parent Behavior. *Child Develpm.*, 1941, 12, 131-66.

(6) CHAMPNEY, H. The Variables of Parent Behavior. *J. abnorm. soc. Psychol.*, 1941, 36, 525-42.

(7) GOODENOUGH, F. L. *Developmental Psychology* (2nd Edition). New York: D. Appleton-Century, 1945.

(8) THURSTONE, L. L. *Multiple Factor Analysis*. Chicago: Univ. of Chicago Press, 1947.

TABLE 2
UNROTATED FACTOR LOADINGS

	I	II	III	IV	V	VI	VII
1	36	38	16	28	—08	59	17
2	19	20	—13	75	25	04	—05
3	52	41	37	01	—15	33	11
4	04	36	—29	23	02	62	—30
5	25	36	22	63	—07	—05	13
6	84	—16	—01	15	10	00	02
7	68	—20	—06	—07	—06	—15	25
8	69	04	—24	22	10	—09	—39
9	21	67	08	—29	31	19	—16
10	22	—09	—03	—62	48	—04	—11
11	45	11	—01	—35	59	—09	—10
12	47	83	—07	02	—01	—10	—14
13	46	81	00	—12	05	—11	—10
14	36	68	24	35	—16	—14	09
15	59	27	53	14	20	15	—10
16	53	33	63	—02	—03	—10	—10
17	—12	23	22	—14	22	12	56
18	45	79	—05	—04	09	—17	01
19	32	60	—08	51	—17	01	—07
20	77	—20	—16	—10	—10	02	06
21	80	—06	05	16	—18	03	27
22	26	40	55	—27	26	—02	24
23	69	53	03	00	15	—06	15
24	45	78	—14	11	—11	—02	03
25	72	—01	—17	12	—05	—38	—09
26	86	17	23	—05	—03	13	01
27	41	68	—05	—03	—18	35	25
28	17	50	49	—13	—03	—38	09
29	79	25	04	—24	15	25	—12
30	80	18	33	—19	07	19	—02

TABLE 3
TRANSFORMATION MATRIX

	A	B	C	D	E	F	G
I	.610	.040	.096	.099	.100	.000	.000
II	—.400	.671	—.038	.000	—.039	.087	.019
III	—.200	—.431	.918	.000	—.102	.000	.059
IV	.038	—.281	.096	.832	—.024	.000	.000
V	—.229	—.361	—.019	.525	.961	.087	.226
VI	—.238	—.391	.210	—.099	.209	.962	—.196
VII	.562	.000	—.306	.119	—.113	—.243	.952

TABLE 4
MATRIX OF CORRELATIONS OF PRIMARY VARIABLES

	I	II	III	IV	V	VI	VII
I	1.00						
II	.37	1.00					
III	.36	.34	1.00				
IV	.38	.63	.36	1.00			
V	.23	.32	—.22	.06	1.00		
VI	.03	.27	—.36	.04	.26	1.00	
VII	—.36	.06	—.14	.11	.26	—.11	1.00

TABLE 5
OBLIQUE FACTOR LOADINGS[1]

	I	II	III	IV	V	VI	VII
1	02	—08	03	27	55	19	04
2	00	—12	26	—01	09	76	00
3	10	06	—09	42	31	—04	03
4	—37	05	20	—03	70	11	—41
5	09	02	—12	23	—05	53	14
6	57	—15	18	09	—01	26	04
7	69	02	—03	—09	—23	02	25
8	24	10	21	—03	01	27	—34
9	—37	32	35	12	32	—10	—10
10	—01	—02	51	—05	03	—26	01
11	05	02	61	00	—01	06	06
12	—08	64	01	—03	01	05	—10
13	—09	62	05	01	—01	—03	—05
14	03	38	—22	21	—11	27	10
15	01	—19	23	61	21	25	—04
16	04	03	—06	63	—05	02	—04
17	02	—03	13	01	02	04	58
18	—01	61	07	—08	—09	08	08
19	—01	36	—15	01	07	36	—10
20	63	02	00	—08	—02	—05	02
21	69	—02	—12	07	—06	15	21
22	—04	03	21	41	—01	—03	33
23	27	34	16	01	—03	17	20
24	04	62	—09	—12	04	08	01
25	53	23	—03	—12	—36	17	—03
26	39	02	05	31	14	02	—01
27	08	43	—11	—04	33	—08	14
28	—05	33	—17	33	—35	—06	19
29	20	10	28	17	32	—08	—12
30	27	—04	15	40	21	—06	—02

[1]After rotation, the order of these factors was changed to facilitate their discussion. If a comparison is made with the unrotated loadings and the transformation matrix, the order should be I, II, IV, VI, III, V, VII, instead of the order finally used and shown in this table.

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ANNOUNCEMENT

To Members of the Society for Research in Child Development

In Making plans to attend the Biennial Meeting December 28 and 29, don't forget the business meeting Thursday morning, December 29.

THE EFFECT OF HOME ENVIRONMENT ON NURSERY SCHOOL BEHAVIOR

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Fels Research Institute for the Study of Human Development

The author, in a previous paper (1), presented some findings from the Fels Research Institute concerning the effects of democracy in the home upon the behavior of the nursery school child. The present report is supplementary; it includes the study of a wider variety of home conditions and employs a more elaborate battery of ratings of the child's behavior. The children in the present study are not identical with those in the previous study although there is some overlap of the two groups.

From the records of the Institute, the Nursery School Behavior ratings of all the children between the age of 36 months and 60 months were selected. In most cases, there were several ratings on each child during that interval. In such a case, the rating closest to 48 months of age was selected. These ratings were then paired with parent behavior ratings made by the Fels Home Visitor. The parent rating most nearly contemporary with the nursery school rating was selected. These procedures provided a group of 56 cases, on whom both nursery school ratings and ratings of the home environment were available.

The Fels Parent Behavior Rating Scales used to describe the home environment of the children have been thoroughly described in various publications. They provide a rating on each of thirty variables whose reliabilities have been shown to be reasonably satisfactory, and whose pattern of interrelationships has been investigated both by clinical and statistical methods. These analyses have shown the fundamental importance of three syndromes of variables, labeled *warmth, democracy,* and *indulgence.* There are other syndromes, but these three have seemed to have the deepest and most widespread impact upon the parent-child relationship.

If the cases in the present study are classified either high or low, upon each of the three syndromes, *warmth, democracy* and *indulgence,* a theoretical eight class situation exists. Two of these eight classes are, for practical purposes, nonexistent. Figure I, shows the distribution of the cases among the eight classes.

Because of the number of cases in two of the classes, the single case in the low warmth, high indulgence, high democracy, group was discarded; the remaining 55 cases were divided into the six groups shown in the table. This classification of the cases on the basis of home environment is constant throughout the rest of the report. The function of this research is to show the similarities in the nursery school behavior of the children from similar types of homes, and to account for the differences in the nursery school behavior of children from different types of homes.

TABLE 1

MEAN AND STANDARD DEVIATION OF CHILD BEHAVIOR VARIABLES IN SUBGROUPS

Variable	HHH		HLH		HHL		LLH		LHL		LLL	
	Mean	σ	*Mean*	σ	*Mean*	σ	*Mean*	σ	*Mean*	σ	*Mean*	σ
1 Social Interaction	26.87	8.31	22.80	4.75	30.40	6.92	27.44	8.00	30.00	8.09	24.25	7.17
2.1 Exploratory Contacts	10.64	6.71	18.50	6.28	15.20	8.73	17.78	9.21	10.75	4.87	13.12	6.95
3.1 Friendly Play	26.60	7.38	21.80	6.68	31.00	7.87	24.56	6.06	27.50	7.23	22.88	7.41
3.2 Fighting	23.40	7.05	19.00	9.65	26.30	6.10	25.78	10.38	24.25	9.47	21.50	5.68
4.1 Aggression	22.27	8.01	18.00	6.96	25.80	7.77	24.00	11.13	26.25	9.86	19.25	7.33
4.2 Success of Aggression	22.20	7.04	14.80	8.28	26.60	5.20	19.11	7.65	24.00	8.78	18.38	6.17
4.3 Receiving Aggression	22.47	6.02	19.20	6.62	22.60	6.23	25.44	9.00	23.50	8.11	23.12	5.99
4.4 Resisting Aggression	23.53	7.68	18.60	7.31	23.20	7.96	24.33	11.98	21.12	8.27	20.00	7.68
5.1 Seeking Alliance	25.67	9.68	18.60	6.80	27.90	9.12	20.56	7.56	25.75	8.06	21.38	6.75
5.2 Success of Approaches	27.87	8.05	20.20	9.17	29.30	9.49	23.00	9.12	28.38	7.73	23.25	6.53
5.3 Approaches Rejected	19.93	5.58	19.80	9.64	16.60	7.16	22.56	10.98	19.00	4.77	22.12	6.95
5.4 Receiving Alliance	24.53	6.39	19.00	6.63	27.80	8.63	20.44	6.80	28.88	8.05	19.25	5.45
5.5 Accepting Alliance	27.87	7.76	20.80	9.09	30.50	5.85	23.22	8.24	25.88	7.25	23.38	6.54
5.6 Rejecting Alliance	18.58	6.44	22.80	10.26	19.89	6.60	18.22	11.29	18.57	5.86	17.50	4.00
6.1 Bossing	26.20	8.74	23.20	11.82	26.40	8.33	19.00	7.12	29.88	8.82	19.25	9.31
6.2 Success of Bossing	22.80	7.08	16.80	6.91	26.90	7.56	15.89	7.63	29.62	8.43	18.88	7.76
6.3 Receiving Bossing	26.73	6.33	22.20	9.10	24.90	5.70	28.67	6.22	21.50	7.55	24.75	7.03
6.4 Accepting Bossing	24.07	6.56	24.00	9.32	24.00	5.35	29.33	9.86	22.75	9.07	23.75	7.90
7.1 Receiving Attention	24.13	7.02	21.20	7.03	27.20	5.00	21.44	7.36	27.62	7.55	19.12	4.90
7.2 Avoiding Attention	20.87	6.97	31.00	12.79	20.30	8.81	25.11	8.17	14.88	6.16	21.50	7.58
7.3 Seeking Attention	24.42	8.20	22.80	7.17	26.11	6.01	26.11	11.23	27.71	12.16	20.00	7.05

TABLE 1 (*continued*)

Variable	HHH		HLH		HHL		LLH		LHL		LLL	
	Mean	σ	*Mean*	σ	*Mean*	σ	*Mean*	σ	*Mean*	σ	*Mean*	σ
8.1 Inferiority Status	25.00	8.34	29.40	4.76	22.60	6.18	27.78	5.62	19.88	5.84	25.88	4.46
8.2 Protesting Inferiority	25.67	7.72	20.20	9.72	29.20	4.19	26.00	11.84	30.25	9.19	21.25	7.63
9.1 Offering Help	22.73	8.16	25.60	6.97	22.10	7.84	23.22	9.01	22.62	6.42	21.12	4.51
9.2 Success of Offers	20.60	6.86	21.20	7.99	22.90	6.32	20.89	5.42	21.00	5.63	21.71	4.58
9.3 Receiving Help	23.73	6.41	16.60	7.96	24.80	5.23	24.89	10.12	21.00	5.48	23.88	4.05
9.4 Asking Help	27.80	6.67	30.80	4.33	25.90	5.03	27.44	5.27	23.50	6.89	28.75	6.24
10.1 Interaction with Adults	26.93	6.89	31.00	2.97	26.10	5.19	27.11	7.64	27.62	3.71	24.00	5.29
10.2 Friendly Overtures	24.07	8.92	26.60	8.66	22.60	7.93	21.11	7.40	23.62	6.14	21.25	6.78
10.3 Asking Adult Help	26.80	9.02	25.60	11.20	23.70	6.13	25.67	7.55	27.25	4.21	25.62	8.09
10.4 Adult Interference	22.87	5.76	24.40	3.88	25.80	7.36	26.33	7.83	25.62	4.92	23.38	6.52
10.5 Resisting Interference	22.40	8.70	20.40	12.32	24.80	9.15	23.33	11.26	25.00	2.87	23.75	8.42
11.1 Object-Centeredness	24.93	6.68	25.00	7.46	25.60	6.22	27.56	6.32	27.25	6.78	24.50	6.14
11.2 Acquisitiveness	27.80	7.96	23.80	9.85	28.90	6.79	25.78	7.28	30.25	7.14	27.50	7.16
11.3 Orderliness	28.78	3.84	33.80	6.76	23.80	6.74	23.44	9.64	24.62	6.27	23.38	5.52
11.4 Constructiveness	26.87	8.44	16.60	11.11	28.70	9.24	26.00	6.77	30.00	6.10	25.00	7.16
12.1 Imitation	26.07	6.01	29.80	7.63	22.90	6.25	28.67	8.64	20.88	5.28	31.00	6.02
12.2 Dramatic Play	27.93	8.70	21.60	11.15	28.70	9.79	26.22	5.68	31.50	10.31	20.62	6.16
13.1 Expostulation	25.53	8.57	22.80	9.79	28.30	6.99	24.89	9.79	31.75	8.47	21.75	7.21
13.2 Questioning	27.40	7.01	20.60	8.33	33.80	6.82	28.89	7.68	34.88	6.65	24.75	7.15
14.1 Vigor of Activity	24.27	8.39	19.40	7.09	33.60	5.92	28.56	6.72	31.75	4.82	25.88	6.09
14.2 Large Muscle Skill	29.20	6.76	26.80	4.87	37.20	5.95	29.89	6.90	34.62	4.65	28.12	6.03
14.3 Small Muscle Skill	28.33	9.88	26.80	5.19	32.40	8.94	25.22	5.40	33.75	6.76	24.50	6.67
14.4 Physical Apprehension	27.93	6.49	30.20	8.42	17.80	6.37	26.78	10.14	21.25	6.14	24.00	7.18
15.1 Social Apprehension	25.27	8.94	28.60	13.28	20.60	7.35	26.22	8.24	20.38	7.99	24.38	6.38

FIGURE I

THE DISTRIBUTION OF THE CASES AMONG THE EIGHT THEORETICAL SUBGROUPS

	High Warmth		Low Warmth	
	Democracy		Democracy	
	High Democracy	Low Democracy	High Democracy	Low Democracy
High Indulgence	15	5	1	9
Low Indulgence	10	0	8	8

The battery of rating scales used to describe nursery school behavior in this study has not been published as yet. Therefore, the following short description is included. The battery includes 45 variables as listed in Table 1 (pages 50-51). There is within the battery a hierarchy of generalization. The behavior of the child is first described in three main variables: 1, Interaction with contemporaries; 10.1, Interaction with adults; 11.1, Object-centeredness. These three variables describe roughly how the child's time and interest is divided among those three kinds of situations. Under each of these main variables, there are descriptive variables describing the nature of his activity in more detail. Thus under 1, Social Interaction are: 3.1, Friendly play, 3.2, Fighting. Under 3.2, Fighting, are the various variables 4.1, 4.2, etc. describing various sorts of child-to-child relations involving aggression.

The meaning of various patterns of ratings on this battery has not been nearly as well explored as have the patterns of parent behavior. The various patterns presented in this report must, therefore, be interpreted in terms of general knowledge of personality as described by the scales rather than in terms of extensive experience with the specific meanings of this particular battery.

RESULTS

The means and standard deviations for each of the six subgroups are shown in Table 1. The analysis of the data in a complex design of this sort may be carried out in a variety of ways, but it is preferable to determine the method of analysis ahead of time. In the present research, the selection of the groups was made in order to test the effect of the three main factors upon nursery school behavior, namely, warmth, democracy and indulgence. If the number of cases in each cell could have been controlled, the analysis would have been straight-forward. As it was, however, the correlations between the three variables that exist in the population appeared in

the unequal frequency of cases in the various subgroups. Consequently, the three main effects are interdependent, and cannot be tested independently of each other. This may be illustrated in the test of the effect of democracy. The subgroups high on democracy may be compared with the subgroups low on democracy, but the high democracy groups contain more cases which are also high on warmth than do the low democracy groups. Similarly, the high democracy groups contain fewer cases also high on indulgence than the low democracy groups. It is not possible to test democracy, uncontaminated by indulgence or warmth.

It is possible, however, to make statistically valid tests of a variety of hypotheses. These will be described in terms of analysis of variance.

1. The total variance may be analyzed into two portions: one estimating the variance within subgroups, the other the variance between subgroups. These two estimates are independent of each other and their ratio may be tested by means of the usual F test. Such a procedure tests the null hypothesis that the six subgroups are random samples from the same population. The variance between subgroups contains 5 degrees of freedom, the variance within subgroups contains 49 degrees of freedom as outlined in Figure II showing the actual values for variables 12.2, Dramatic play.

FIGURE II

ANALYSIS OF VARIANCE (STEP 1)
SEPARATION OF TOTAL SUM OF SQUARES INTO TWO COMPONENTS

	DF	Sum Squares	Variance	
Between subgroups	5	675.70	135.14	F=1.59
Within subgroups (error)	49	4156.41	84.82	
TOTAL	54	4832.11		

This total sum of squares between groups (675.70 in Figure II) contains the sum of squares attributable to any comparison of one set of subgroup means with another set. It is conceivable that some such comparison, i.e. some single degree of freedom, might be associated with that total sum of squares, but no comparison could lead to a larger sum of squares. If, therefore, the total sum of squares is so small that it would not be significant, even if there were only one degree of freedom associated with it, then there is no possibility of finding any significant difference by searching for the proper comparison among the subgroup means. To use variable 12.2 as an example, the sum of squares between groups is 675.70. If this were associated with only one degree of freedom, the variance would be 675.70. By comparison with an error variance of 84.82, F would be 7.9, a significant value. Child behavior variables for which the sum of squares between groups is so small are, therefore, eliminated from further statistical treatment.

For the remaining variables, there *may* be some significant differences among the various subgroups. The tests to be applied should be determined ahead of time, however, in order to avoid capitalizing upon chance differences which might exist.

2. The next step in the statistical treatment is to analyze the variance between groups into two components. One is attributable to the combined independent effects of warmth, democracy and indulgence; the other is due to interactions. This analysis is accomplished by testing the following hypothesis: The mean for any subgroup may be predicted by summating the following effects: (a) an effect due to warmth, whose value depends on whether the subgroup is warm or not warm, (b) plus an effect due to democracy, (c) plus an effect due to indulgence, (d) plus a general effect which is the same for six groups. The precise values of these four effects may be determined in such a way that the best possible fit to the data according to the criterion of least squares is effected.

For variable 12.2, Dramatic play, for example, the values of the effects are as follows:

(a) If a group is high on warmth, the best estimate of its effect is —1.88; if a group is low on warmth, its effect is +1.88.

(b) For democracy, the effect is +4.11 for high democracy; —4.11 for low democracy.

(c) For indulgence, the effect is .91 or —.91 depending upon whether the indulgence is high or low.

(d) The general effect is 25.97.

The predicted value of the mean of the subgroup which is high on warmth, democracy and indulgence, may be calculated according to this hypothesis, viz. (—1.88) + (4.11) + (.91) + (25.97) = 29.11. The actual value is 27.93. For the other five subgroup means, the prediction can be arrived at similarly. Figure III shows the predicted and actual values.

FIGURE III

PREDICTED AND OBTAINED VALUES FOR THE SIX SUBGROUPS MEANS FOR VARIABLE 12.2

Description of Subgroup				
Warmth	Democracy	Indulgence	Predicted Value	Actual Value
H	H	H	29.11	27.93
H	L	H	20.89	21.60
H	H	L	27.29	28.70
L	L	H	24.65	26.22
L	H	L	31.05	31.50
L	L	L	22.83	20.62

The variance of these predicted subgroup means estimates the total variance due to the independent effects of the three factors and is associated with three degrees of freedom. The remainder, when that variance is subtracted from the total variance between subgroups, estimates the accuracy of the fit of the hypothesis and is associated with two degrees of freedom. If this residual variance is significant when compared to the error variance, the hypothesis is demonstrated to be inadequate and there must be special effects accompanying particular combinations of the factors which cannot be accounted for by treating them as independent and additive. In other words, there is interaction. For only two of the variables in this study was there a significant interaction, 13.2, Questioning and 14.1, Vigor of activity. The data for variable 12.2 is shown in Figure IV.

FIGURE IV

ANALYSIS OF VARIANCE (STEP 2)
SEPARATION OF SUM OF SQUARES BETWEEN GROUPS INTO TWO COMPONENTS

	DF	Sum Squares	Variance		
Independent Variance	3	569.86	189.95	F=2.24	(by Comparison
Interaction Variance	2	105.84	52.92	F= .62	with error, Figure II.)
Variance between Groups .	5	675.70			

3. If the interaction is not significant, then the hypothesis is taken to be adequate, and the analysis proceeds to the next step, the determination of the effect of the separate factors. One of the complications of analysis of variance when there are varying numbers of cases in each subgroup is that the estimation of the effect of each factor depends upon what other factors are being simultaneously estimated. For example, the values of the effects in variable 12.2 under different conditions are shown below.

If democracy alone is estimated, general effect is 26.13 and democracy is 2.99. If warmth and indulgence alone are estimated, general effect is 26.24, warmth .69, indulgence —.59. These values may be used to test the adequacy of various hypotheses. If democracy alone is estimated, the hypothesis being tested is that the subgroup means may be adequately predicted knowing a general effect and an effect of democracy. If the variance of such estimates is subtracted from the total variance due to all three factors acting independently, the adequacy of that hypothesis may be determined. If the residual variance under such conditions is insignificant, then it can be concluded that within the framework of the alternative hypothesis stated in this treatment, democracy is sufficient to account for the obtained data. Thus we have a test of the "sufficiency" of a factor.

Now if warmth and indulgence are estimated together, leaving out democracy, then the hypothesis is being tested that the subgroup means may

be predicted by means of warmth and indulgence alone. If the residual variance, measuring the adequacy of the fit, is insignificant, then the sufficiency of those two variables acting together is established. If, however, the residual variance is significant, then warmth and indulgence acting together are shown to be insufficient to account for the total variance due to all three factors. In other words, democracy is, within the framework of the stated alternatives, "necessary." The data for 12.2 is shown in Figure V.

FIGURE V

ANALYSIS OF VARIANCE (STEP 3)
THE TESTS FOR NECESSITY AND SUFFICIENCY

Test of Sufficiency of Democracy

	DF	Sum Squares	Variance	
Democracy	1	464.11		
Remainder	2	105.75	52.87	F= .62
Independent Variance	3	569.86		

Test of Necessity of Democracy

	DF	Sum Squares	
Warmth and Indulgence ...	2	35.52	
Remainder	1	534.34	F=6.30
Independent Variance		569.86	

There are certain logical relations among these findings. It is possible that two factors might both be "necessary" or they might both be "sufficient." It is impossible, however, for one factor to be sufficient, while another one is necessary. If, therefore, one variable is necessary and sufficient, no other variable can be either.

4. There is still another test which can be made. The significance of each factor can be tested, singly against the error variance. An estimate of its variance which is independent of the error variance can be found. Its variance as estimated under those conditions is not, however, independent of the variance of the other factor. It is possible for two variables to both be significant, while neither is necessary or sufficient. One factor may be significant while another is both necessary and sufficient, although this is an unlikely circumstance.

There are, therefore, three different sorts of tests for each of the factors warmth, democracy and indulgence, which may be applied to the data on each of the Child Behavior variables. These will be indicated in Table 2, as follows: Sig.—significant; Suff.—sufficient; Ness.—necessary; N+S necessary and sufficient. Table 2 includes for each variable, the values of the

three effects estimated simultaneously as described in Step 2 and a statement of the significance of each factor. The +, or —, beside each statement of the significance is taken for the first half of the table and shows the direction of the effect.

Before concluding this section of statistical description, it would be wise to indicate once more that these terms, necessity and sufficiency, are applicable within a particular framework of alternative hypotheses. The statement that democracy is a necessary and sufficient variable in accounting for the data on 12.2, Dramatic play can be expanded into the following form which states all the restrictions upon that statement. Among the alternative variables, warmth, democracy and indulgence, which together adequately predict the subgroup means, the variable democracy is sufficient to predict those means with a statistically insignificant remainder, and it is impossible to predict those means with a statistically insignificant remainder by means of any one alternative variable or by any combination of the alternative variables.

The clear cut result of this analysis is that democracy is by far the most important of the three factors in terms of accounting for the variability of the various subgroup means. Those variables which show significant effects of democracy in the home seem to reflect three sorts of consequences of democracy. First, children in the Fels population who are raised democratically seem to be rated higher on behavior reflecting an active, socially outgoing type of activity, the hostile and domineering kinds of activity as well as the friendly kinds. Second, children from democratic homes are in a favored position in the groups to which they belong. Their aggression and bossing is on the whole successful, and they are not likely to have inferior status in the group. Third, children from democratic homes are generally rated high on activities demanding intellectual curiosity, originality and constructiveness.

The effects of indulgence are generally opposite to those of democracy, but indulgence has specific effects on two interrelated variables of child behavior: physical apprehension, and lack of skill in muscle activities.

These results generally confirm the findings presented in the previous publication as well as the statement of many other writers who have discussed the parent-child relationship. In nursery school, the most striking differences among children may be seen in their activity level, and self-assertiveness. The immature, shy child and the anxiety-ridden apprehensive child together form a group which is in sharp contrast with the active, curious child who participates fully in social activities. The differences between the socially immature child and the apprehensive child are not nearly as obvious or clear cut.

Democratic parents encourage free exploration and experimentation, thus providing intellectual stimulation with a minimum of infantilization. Such a democratic environment can, of course, be so lacking in emotional

TABLE 2

EFFECT AND SIGNIFICANCE OF PARENTAL FACTORS ON CHILD BEHAVIOR

Variable	*Warm*	*Democ.*	*Indul.*	*Gener.*	*Warm*	*Democ.*	*Indul.*	*Int.*
1 Social Interaction	— .94	2.17	— .35	26.98	.....	Sig.+	.....	...
2.1 Exploratory Contacts	1.28	—2.83	— .38	14.20	.....	N+S−	.....	...
3.1 Friendly Play	.37	2.06	— .90	25.82	.....	Suff.+	.....	...
3.2 Fighting	— .89	1.40	.11	23.56	.....	.....	.....	...
4.1 Aggression	—1.50	2.49	— .03	22.59	.....	.....	.....	...
4.2 Success of Aggression	— .19	2.96	—1.07	21.01	.....	N+S+	.....	...
4.3 Receiving Aggression	—1.58	.72	.51	22.90	.....	.....	.....	...
4.4 Resisting Aggression	— .62	1.22	1.08	22.04	.....	.....	.....	...
5.1 Seeking Alliance	.21	2.72	— .77	23.46	.....	Suff.+	.....	...
5.2 Success of Approaches	— .31	3.07	— .43	25.47	.....	Suff.+	.....	...
5.3 Approaches Rejected	—1.22	— .75	1.03	20.08	.....	.....	.....	...
5.4 Receiving Alliance	— .69	3.68	— .74	23.18	.....	N+S+	.....	...
5.5 Accepting Alliance	.84	2.15	— .72	25.53	.....	Suff.+	.....	...
5.6 Rejecting Alliance	1.27	— .73	— .30	19.05	.....	.....	.....	...
6.1 Bossing	— .18	3.61	— .22	23.62	.....	N+S+	.....	...
6.2 Success of Bossing	— .64	4.26	—1.88	21.60	.....	N+S+	.....	...
6.3 Receiving Bossing	— .34	.02	1.48	25.20	.....	.....	.....	...
6.4 Accepting Bossing	— .81	— .53	1.23	24.78	.....	.....	.....	...
7.1 Receiving Attention	— .27	2.74	— .46	23.26	.....	N+S+	.....	...
7.2 Avoiding Attention	2.75	—4.25	.88	22.15	.....	N+S−	.....	...
7.3 Seeking Attention	—1.30	2.12	.73	24.34	.....	.....	.....	...
8.1 Inferiority Status	1.15	—2.62	1.12	25.16	.....	N+S−	.....	...
8.2 Protesting Inferiority	—1.64	3.31	— .05	25.38	.....	N+S+	.....	...
9.1 Offering Help	.30	— .30	.57	22.71	.....	.....	.....	...
9.2 Success of Offers	.60	— .41	— .84	21.42	.....	.....	.....	...
9.3 Receiving Help	— .59	.70	.06	23.00	.....	.....	.....	...
9.4 Asking Help	1.37	—1.88	.30	27.38	.....	Suff.−	.....	...
10.1 Interaction with Adults	.29	— .02	.79	26.79	.....	.....	.....	...
10.2 Friendly Overtures	.84	.17	.32	22.95	.....	.....	.....	...
10.3 Asking Adult Help	—1.01	.87	.89	25.71	.....	.....	.....	...
10.4 Adult Interference	— .45	— .01	— .26	24.64	.....	.....	.....	...
10.5 Resisting Interference	— .69	.70	— .76	23.35	.....	.....	.....	...
11.1 Object-Centeredness	—1.08	.56	.42	25.72	.....	.....	.....	...
11.2 Acquisitiveness	— .79	1.69	— .66	27.39	.....	.....	.....	...
11.3 Orderliness	1.94	— .53	1.35	35.93	Sig.+	.....	Sig.+	...
11.4 Constructiveness	—2.34	3.54	— .23	25.83	.....	N+S+	.....	...
12.1 Imitation	.93	—3.36	.50	26.78	.....	N+S−	.....	...
12.2 Dramatic Play	—1.88	4.11	.91	25.97	.....	N+S+	.....	...
13.1 Expostulation	—1.55	3.09	.23	25.57	.....	Suff.+	.....	...
13.2 Questioning	—2.19	3.81	— .99	28.38	.....	N+S+	.....	Sig.
14.1 Vigor of Activity	—1.52	2.13	—2.09	27.37	.....	Sig.+	Sig.−	Sig.
14.2 Large Muscle Skill	— .04	1.86	—1.97	30.92	.....	Sig.+	Sig.−	...
14.3 Small Muscle Skill	— .17	2.66	—1.12	28.20	.....	Suff.+	.....	...
14.4 Physical Apprehension	— .20	— .91	3.50	24.57	.....	.....	N+S+	...
15.1 Social Apprehension	.60	—1.71	1.74	24.23	.....	.....	.....	...

support that the freedom and stimulation only provoke anxiety, but most democratic homes are warm and do provide emotional support. The child, therefore, works out the anxiety which new situations evoke under the protection of a sympathetic yet encouraging mother. Democracy thus tends to develop active participation in a nursery school play situation, as shown by the clear importance of democracy in the statistical analysis.

It would not be accurate to ignore other characteristics of the democratic home which probably play a role in these findings. Democratic parents and their children generally have an I.Q. which is higher than other types of parents and their children. The greater creativity, imaginativeness and constructiveness of children from democratic homes is certainly related to the intelligence of those children. On the other hand, there is evidence that a democratic home stimulates the I.Q. so the exact role of intelligence is difficult to appraise. Another factor might be considered an artifact. One of the ways democratic parents in the Fels study provide their encouragement of the child is by sending them to nursery school. The children of democratic parents in this study had more nursery school experience outside of the Fels situation than did children from other kinds of homes. Again it is difficult to determine the role of the nursery school experience. The point is that democracy in the home is not operating merely during the time the parent and child are together. It is a general characteristic which tends to shape all of the child's environment into a general pattern. It is by way of such environmental factors that the democratic philosophy of the parent has its effect on the child.

To summarize the statistical analysis, democracy has been shown to have a large number of important effects upon nursery school behavior; particularly, it encourages free and active participation in nursery school activities, it makes successful aggression and self assertion more likely and it promotes creative and constructive behavior. Indulgence has specific effects of making the child physically apprehensive and inhibiting the development of large muscle skill.

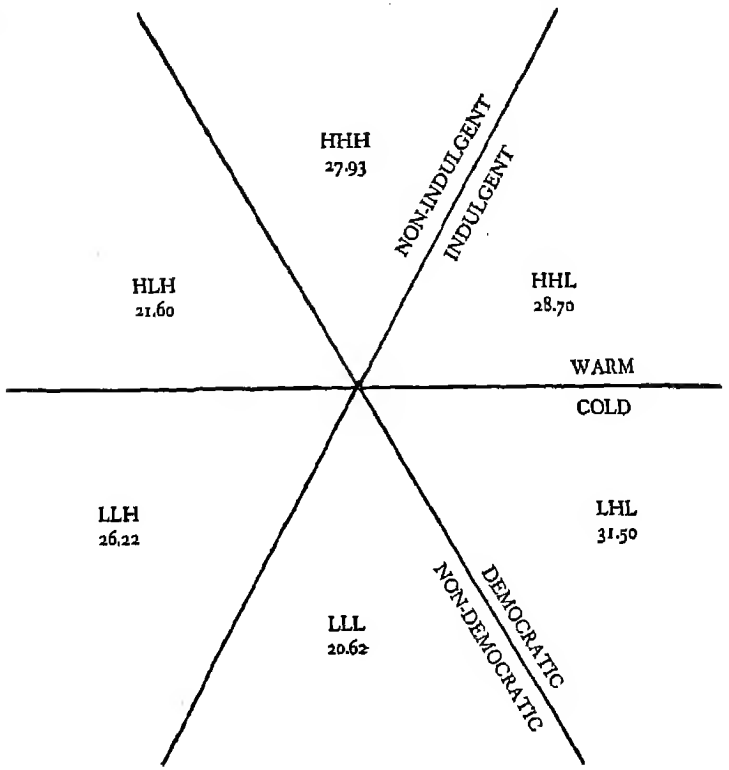
The report might end at this point with the acceptance of these findings at their face value. To do so, however, would, in the author's opinion, ignore certain aspects of the data which are very provocative of further research. The subgroup means on variable 12.2, Dramatic play, can again be used for illustration (Fig. VI). If the groups are designated by the various combinations of H and L as in Table 1, where the factors are listed in the order, warmth, democracy, indulgence, the data can be conveniently arranged in the form of a hexagon.

The three groups above the middle are warm, the three below are cold. The three groups to the right of the democratic axis are democratic, the three to the left are non-democratic. The three groups to the left of the indulgence axis are indulgent, the three to the right are non-indulgent.

It will be noticed that among the warm groups, the means increase from

FIGURE VI

MEANS OF 12.2, DRAMATIC PLAY IN EACH SUBGROUP



left to right. There is a progression from high indulgence, low democracy through high indulgence, high democracy to low indulgence, high democracy. Among the cold groups, however, the LLL group, low on all three factors is lowest, the high indulgent group next and the high democracy group highest. This general pattern of group means is found very frequently, particularly in those variables for which the statistical analysis shows that democracy is the important factor. The consistency with which this pattern appears seems to suggest that the mere statement that democracy is the important factor misses something. One hypothesis which is suggested is that the two groups with the lowest means are hampered by different factors. A study of the parent ratings confirms that suspicion. The LLL group is marked by a drastically low level of intellectual stimulation but by only moderate levels of restrictiveness. Restrictiveness of regulations, quantity of suggestion and criticism, babying and protectiveness, in short,

all the different varieties of limitations upon the child's freedom, are lower in the LLL group than in either of the indulgent groups (LLH or HLH). Furthermore, some consequences of this difference can be seen in the ratings of nursery school behavior although not strikingly. On the variables describing intellectual constructiveness, dramatic play, non-imitation and the like, it is the LLL group which has the lowest rating of any. On variables describing apprehensiveness, especially physical fearfulness and physical skill, and those describing social aggressiveness, it is the HLH group which is rated lowest.

This suggests that a different kind of analysis might reveal more information than did the one employed in this report, that the original groupings of cases might better be made on the basis of restrictiveness and intellectual stimulation than on the basis of democracy alone.

There is one serious difficulty to such an analysis, however. That is the behavior of the LLH group, low on warmth, high on indulgence and low on democracy. In terms of the treatment of these children in the home, they would be predicted to be the most hampered of any, because they are almost as restricted as the HLH group and received almost as little intellectual stimulation as the LLL group. Instead of being rated the lowest on the child behavior scales measuring active participation, they received ratings which are higher than either of the other non-democratic groups. For this fact, the author has no explanation worthy of the name.

The obvious answer to the questions provoked by these divergences of the data from the simple hypothesis that democracy in the home produces widespread evidence of active participation in free play activities, is another research project. It should involve more cases and should be designed to test some of the hypotheses that inspection of these data has suggested.

All such questions deal with a refinement of the hypotheses tested in the present study; they do not contradict it. This study and the previous one confirm each other, leading to the conclusion that the effect of the democratic home as contrasted to the non-democratic one is to stimulate the child in such a way that he is more actively engaged in peer-centered activities, that he is more successful in those activities, and that he is better able to contribute original creative ideas to the groups with which he interacts.

References

1. Baldwin, Alfred L. Socialization and the Parent-Child Relationship. *Child Develpm.*, 1948, 19, 127-136.

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AN ACOUSTICAL STUDY OF VOCAL PITCH IN SEVEN- AND EIGHT-YEAR-OLD BOYS

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The collection of information concerning the voices of pre-adolescent male children was the general objective of the present study. The specific populations sampled were boys aged seven and eight chronological years. One vocal attribute, pitch, was studied by means of acoustical measurement of the fundamental frequencies of the voices of the subjects. A companion study of girls at the same age levels will be reported separately, as will similar studies involving duration measurements.

Changes in vocal pitch during childhood, especially during infancy and adolescence, are marked. Two phenomena, pitch level and "voice breaks,"[1] are of particular interest because of their relationship to anatomical and physiological changes in the laryngeal region. The pitch level of the male child is known to descend over a wide interval from infancy to adulthood; the approximate extent of this interval may be gauged by comparing the results of *Fairbanks* (3) and *Pronovost* (7). Data which would permit a complete plot of the changes in pitch level as a function of age are not, however, available. The present study provides two additional plotting points for such a curve.

With respect to voice breaks, a study by *Curry* (2) reported the finding that a pre-adolescent control group of ten-year-old boys presented almost as many voice breaks as did the basic subjects, a group of mid-adolescent fourteen-year-old boys,[2] but the study was not designed to present data on this important, fundamental question: Are voice breaks at age ten advanced signs of beginning adolescence, or are they typical phenomena in the voices of pre-adolescent males generally? The present study was motivated in part by the need to investigate this problem with a group of boys even further removed from mid-adolescence. Finally, it was a purpose of this study to make inter-comparisons of the two groups of subjects with respect to these and other vocal pitch phenomena.

[1] Acoustically characterized by abrupt changes in fundamental frequency, usually from wave to wave, either upward or downward, typically of one octave in extent, and differing thus from the common inflectional changes of speech (4).

[2] The eighteen-year-old post-adolescent subjects presented no voice breaks.

Procedure

From the population of second- and third-grade boys enrolled in three public elementary schools two groups of 15 subjects each were chosen. Selection was at random except for sex and age. The latter was controlled to within plus or minus two months of 84 and 96 months, respectively. Group means and ranges for age, height, and weight are presented in Table I. The mean heights and weights are very close to the values of *Meredith* (6) for the ages in question. All subjects were able to read the test materials with ease, and no subject possessed any speech atypicality worthy of remark.

The following test passage was employed with all subjects.

Jane is a girl.
Jack is a boy.
They live on a farm.
Jack and Jane
have a big, black dog.
His name is Tip.
Jack and Jane like to play.
They play with Tip.
Tip likes to play ball.
Jack throws the ball to Tip.
Tip runs and catches it.
He brings the ball to Jack.
Then Jane throws the ball
back to Tip.
Mother calls Jack and Jane.
They call Tip,
and go into the house.

The passage was constructed from words used in standard primers, and was designed to be simple enough to be read by second-grade children without great difficulty. During construction it was repeatedly checked for reading level with a number of children. The passage was set up in primer type for use in the experiment, the paragraphing and line lengths being as shown above.

Each subject was brought into the laboratory individually for a high-quality phonograph recording of his oral reading of the test passage. Before the recording the subject practiced the passage both silently and aloud, and was assisted if any words were substituted, omitted, or mispronounced. He then read the passage aloud twice in succession, the second reading

TABLE I

AGE, HEIGHT, AND WEIGHT OF EXPERIMENTAL GROUPS

	Seven-Year-Old Group ($N=15$)	*Eight-Year-Old Group* ($N=15$)
Age (months)		
Mean	84	96
Range	82–86	94–97
Height (inches)		
Mean	49	51
Range	44–57	47–57
Weight (pounds)		
Mean	56	61
Range	42–82	50–81

being recorded. No subject was informed that a phonograph recording was being made, and none showed evidence of fear.

The second and third paragraphs of the test passage ("Jack . . . Tip." and "Tip . . . Tip."), 52 words in total length, were subjected to phonophotography and frequency measurement by means of an oscillographic device designed for the purpose (1). Pitch curves were plotted and the measurements described below were made. Each voice break in the records underwent separate examination by means of careful wave-to-wave measurements.

TABLE II

PITCH LEVEL AND NUMBERS OF VOICE BREAKS

	Seven-Year-Old Group ($N=15$)		*Eight-Year-Old Group* ($N=15$)			
	AM	*SD*	*AM*	*SD*	*Diff.*[1]	t[2]
Pitch Level						
Cycles per Second	294		297			
Tones above 16.35 cps	25.0	1.1	25.1	1.0	0.1	0.244
Number of Voice Breaks						
Downward	1.7	2.7	1.7	2.1	0.0	
Upward	2.1	2.5	2.0	3.4	—0.1	0.089
Total	3.8	4.4	3.7	5.3	—0.1	0.054

[1] $M_8 - M_7$

[2] t, 1 per cent, 2.763; t, 5 per cent, 2.048

Results

Pitch Level and Voice Breaks. Of focal interest are the measurements shown in Tables II and III. Table II presents data on pitch level and the number of voice breaks. It is seen that the mean pitch levels of the seven- and eight-year-old groups are, respectively, 294 and 297 cycles per second, or, as given in the second line, 25.0 and 25.1 musical tones above the zero reference frequency of 16.35 cps (5). The first of these values, 25.0 tones, is the level of D_4 on the musical scale,[3] or one musical tone above Middle C. The difference of 0.1 tone is not statistically significant. Comparable

TABLE III

Extents, Upper Limits, and Lower Limits of Voice Breaks

	Seven-Year-Old Group		*Eight-Year-Old Group*	
	N	*AM*	*N*	*AM*
Extent (tones)				
Downward Voice Breaks	25	6.6	25	5.9
Upward Voice Breaks	32	6.0	30	6.1
Total Voice Breaks	57	6.2	55	6.0
Upper Limit (tones above 16.35 cps)				
Downward Voice Breaks	25	26.1	25	24.6
Upward Voice Breaks	32	25.6	30	25.1
Lower Limit (tones above 16.35 cps)				
Downward Voice Breaks	25	19.5	25	18.8
Upward Voice Breaks	32	19.7	30	19.1

values for ten-year-old boys from *Curry* (2) are a median of 24.4 tones above 16.35 cps and a corresponding frequency of 270 cps, approximately one semitone lower than the means of the present study. Fourteen-year-old boys, with a median of 23.4 tones above 16.35 cps, were approximately one and one-half musical tones lower than the subjects of the present study. This similarity of pitch level over the age range of seven years is notable. In contrast, obtained median pitch levels for eighteen-year-old subjects (2) and adult males (7) were in the neighborhood of C_3.

The balance of Table II pertains to the number of voice breaks. The means of 3.8 and 3.7 total voice breaks at ages seven and eight, respectively, may be thought of as indicating an approximate average frequency of occur-

[3] The subscript system used is that suggested by *Young* (8); the zero reference frequency, 16.35 cps, is C_0 on a scale where A_4 is 440 cps; Middle C, four octaves higher than the reference, is denoted as C_4.

rence of one break every 14 words in this 52-word passage. This is comparable to the ten- and fourteen-year-old boys (2), whose means of 3.3 and 4.2, respectively, occurred during reading of a 55-word passage. Table II also reveals no significant differences between the groups with respect to number of voice breaks.

Table III is concerned with the extents of the voice breaks and with the locations of their upper and lower limits. For purposes of these calculations the breaks for all subjects within each group were pooled, the numbers concerned being given within the body of the table. The data show mean extents in close approximation to one octave (= 6.0 tones) in all instances, as previously reported for older children (2). The upper limits of both downward and upward voice breaks are seen to be close to the mean pitch levels shown in Table II, while the mean lower limits of the breaks are approximately one octave lower, near the pitch level for adult males. The voice breaks, in other words, whether downward or upward, occurred in the lower halves of the pitch ranges of the subjects, and jumped the interval between childhood and adult male pitch levels.

Pitch Variability. Table IV is concerned with certain standard measures of pitch variability, namely, range, inflections, and shifts.[4] The values are very similar to those reported in other studies of children and adults (2, 4, 7), the only differences seemingly worthy of comment being in the 90 per cent pitch range.[5] In this measure the values are similar to those for ten-year-old boys, but somewhat smaller than for older subjects, and the comparative monotony of pitch was perceptible in the phonograph recordings. It is conjectured that this reduced variability is not characteristic of the *speaking* voices of children, but may well be typical of their oral reading during the early grades.

The data of Table IV show no significant differences between the two age levels here sampled. While it is not contended that the study presents exhaustive measurements of pitch variability, the finding is noteworthy. Measurable vocal differences, related to oral reading ability, would be expected. Such differences were clearly to be heard in the recordings, but were most obvious in rate, duration, etc. Measurements of these and other temporal characteristics, showing substantial differences, will be reported later.

[4] "The *total pitch range* is the difference between the highest and lowest fundamental frequencies measured in a given sample and is expressed ... in tones ... an *inflection* is defined as a frequency modulation, either upward or downward, without interruption of phonation, while the term *shift* refers to a change in pitch which takes place between the terminal pitch of a given phonation and the initial pitch of the subsequent phonation." (4)

[5] The range between the 95th and 5th percentiles of the frequency distribution of pitches used; it is expressed in tones.

TABLE IV

MEASURES OF PITCH VARIABILITY. ALL VALUES IN MUSICAL TONES

	Seven-Year-Old Group (N=15)		*Eight-Year-Old Group (N=15)*			
	AM	*SD*	*AM*	*SD*	*Diff.*[1]	*t*[2]
Total Pitch Range	9.8	3.3	9.7	4.0	—0.1	0.073
90 per cent Pitch Range[3]	3.6	0.9	3.9	1.4	0.3	0.682
Extent of Inflections						
Downward	1.8	0.4	1.9	0.5	0.1	0.588
Upward	1.5	0.3	1.5	0.4	0.0	
Total	1.7	0.3	1.7	0.4	0.0	
Extent of Pitch Shifts						
Downward	1.8	0.6	1.5	1.1	—0.3	0.857
Upward	2.2	0.7	2.3	0.8	0.1	0.357
Total	2.0	0.5	2.0	0.8	0.0	

[1] $M_8 - M_7$.

[2] t, 1 per cent, 2.763; t, 5 per cent, 2.048

[3] 95th percentile — 5th percentile

SUMMARY

Two groups of male subjects were selected at random except for age. The first group consisted of 15 seven-year-old boys, ranging in chronological age from 82 to 86 months with a mean of 84 months; the other group consisted of 15 eight-year-old boys, ranging in chronological age from 94 to 97 months with a mean of 96 months. Under laboratory conditions the subjects read aloud a 52-word primary-level test passage; phonograph recordings were made and subjected to phonophotography and frequency measurement. Data on vocal pitch thus were collected, with the following results:

1. Pitch levels for both groups were similar to those of boys at ages 10 and 14, being close to Middle C and approximately one octave above the commonly reported levels for adult males.

2. Voice breaks, similar to those of older boys in number, extent, and location, were found in both groups, appearing to indicate that these phenomena are not to be attributed exclusively to adolescence.

3. Measures of pitch variability such as pitch range, extent of inflections, and extent of pitch shifts showed the two groups to be similar in these respects to older children.

4. Differences between the two experimental groups were not statistically significant.

References

1. Cowan, J. M. Pitch and intensity characteristics of stage speech. *Arch. Speech,* 1936, 1, Suppl., 1-92.
2. Curry, E. T. The pitch characteristics of the adolescent male voice. *Speech Monog.,* 1940, 7, 48-62.
3. Fairbanks, G. An acoustical study of the pitch of infant hunger wails. *Child Develpm.,* 1942, 13, 227-232.
4. Fairbanks, G. Recent experimental investigations of vocal pitch in speech. *J. acoust. Soc. Amer.,* 1940, 11, 457-466.
5. Fletcher, H. Loudness, pitch, and timbre of musical tones. *J. acoust. Soc. Amer.,* 1934, 6, 59-69.
6. Meredith, H. V. Stature and weight of private school children in two successive decades. *Amer. J. phys. Anthropol.,* 1941, 28, 1-40.
7. Pronovost, W. An experimental study of methods for determining natural and habitual pitch. *Speech Monog.,* 1942, 9, 111-123.
8. Young, R. W. *A Table Relating Frequency to Cents.* Elkhart, Ind.: C. G. Conn Co., 1939.

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AN ACOUSTICAL STUDY OF VOCAL PITCH IN SEVEN- AND EIGHT-YEAR-OLD GIRLS

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The present study is a companion to that of *Fairbanks, Wiley, and Lassman* (3), who studied the vocal pitch of seven- and eight-year-old boys, and differs only in the sex of the subjects. Changes in the vocal pitch of the female during early life undoubtedly take place, but the extent of the changes, although presumably much smaller than in the male, has not been investigated. As a matter of fact, unlike the situation in studies of male voice, the literature provides no satisfactory information regarding vocal pitch in average females at any age level. The present study, probably for the first time, presents acoustical data on the vocal pitch of girls.

The pitch level of speech, because of its relationship to growth of the larynx, is of major interest, and this study is the first in a program of acoustical investigations designed to permit the plotting of a curve of pitch level as a function of age in the female. Comparable curves for males and females will differ greatly from adolescence on, but the differences or similarities during pre-adolescent years are not to be predicted on the basis of present information. The present study, taken in conjunction with its companion (3), begins to throw some light in this direction.

Voice breaks in the male adolescent are phenomena of common experience, and have been studied acoustically by *Curry* (1), and by *Fairbanks, Wiley, and Lassman* (3). In the former study a group of ten-year-old pre-adolescent controls were found to have voice breaks similar to those of mid-adolescent subjects. In the latter investigation boys aged seven and eight presented similar voice breaks, a finding which suggests that the phenomena are characteristic of male children generally, and are not unique to adolescence. The present study afforded an opportunity to test the additional hypothesis that voice breaks are not sex-linked. Finally, it was a purpose of the study to compare the two experimental groups.

PROCEDURE

Since its experimental design was identical with that of the companion study of boys (3), the procedure of the present study will not be described in detail and may be summarized as follows.

Two groups of 15 female subjects each were chosen from the public schools, selection being at random except for sex and age. Age was controlled within the limits shown in Table I, which also presents measurements of height and weight, the means being very similar to those of *Meredith* (5). The subjects, individually, read aloud a specially constructed, 52-word, primary-level test passage, which was presented as the central portion

TABLE I

AGE, HEIGHT, AND WEIGHT OF EXPERIMENTAL GROUPS

	Seven-Year-Old Group ($N=15$)	*Eight-Year-Old Group* ($N=15$)
Age (months)		
Mean	84	95
Range	82–86	93–97
Height (inches)		
Mean	50	53
Range	45–64	50–58
Weight (pounds)		
Mean	56	60
Range	40–134	46–75

of a longer passage, and was easily read by all subjects. Phonograph recordings were made, and subjected to phonophotography and frequency measurement. Each voice break was examined with elaborate care by means of wave-to-wave measurement.

RESULTS

Pitch Level. The first portion of Table II presents the data on pitch level. The means of 24.6 and 24.8 tones above the zero reference frequency of 16.35 cps (4) are translated into the more usual expression of frequency in the first line. The difference of 0.2 tone, it is seen, is not statistically significant. Comparable values (3, 1) for boys aged seven, eight, 10, and 14, respectively, are 25.0, 25.1, 24.4, and 23.4 tones above 16.35 cps. All six means are within a 1.7 tone range and approximate Middle C (24.0 tones above 16.35 cps). *Murray and Tiffin* (6) report means for groups of women with poor, good, and trained voices of 23.7, 23.3, and 23.8 tones above 16.35 cps, respectively, while *Snidecor's* (9) values for rigidly selected superior female speakers were approximately two tones below Middle C.

Adult males (8) and eighteen-year-old boys (1), on the other hand, have been reported with means close to 18 tones above 16.35 cps, or around one octave lower. In summary, the pitch levels of the two groups in the present study do not differ from each other, are similar to those of boys of their own age, to those of older boys up to age 14, and to those of adult females, and are higher by approximately one octave than those of mature males.

TABLE II

PITCH LEVEL AND NUMBERS OF VOICE BREAKS

	Seven-Year-Old Group ($N=15$)		*Eight-Year-Old Group* ($N=15$)			
	AM	*SD*	*AM*	*SD*	*Diff.*[1]	t[2]
Pitch Level						
Cycles per Second	281		288			
Tones above 16.35 cps	24.6	1.0	24.8	1.4	0.2	0.426
Number of Voice Breaks						
Downward	1.6	2.6	1.7	1.4	0.1	0.125
Upward	1.5	2.0	1.7	1.7	0.2	0.282
Total	3.1	4.4	3.4	2.9	0.3	0.211

[1] $M_8 - M_7$

[2] t, 1 per cent, 2.763; t, 5 per cent, 2.048

Voice Breaks. Probably the most important finding of the study, certainly unexpected by the experimenters, was the occurrence of voice breaks. The lower portion of Table II shows means of 3.1 and 3.4 voice breaks for the two groups, each divided about equally between downward and upward breaks. None of the differences is statistically significant. In the companion study of boys reading the same passage means of 3.8 and 3.7 total voice breaks were found, while boys at ages 10 and 14 have been reported with means of 3.3 and 4.2, respectively, in a passage of roughly comparable length.

The voice breaks in the present study, although not obtrusive, were clearly audible in the phonograph recordings, and the oscillographic records were verified by impartial individuals expert in acoustical measurement of speech. Since the phenomena were found in the studies cited, but not in studies of eighteen-year-old boys (1), adult males (8), and adult females (9) which employed identical phonographic instrumentation and measurement procedures, the possibility that the voice breaks were artifacts of apparatus or procedure appears unlikely.

Fairbanks, Wiley, and Lassman (3), having found voice breaks in pre-adolescent boys, concluded that they "... are not to be attributed exclusively to adolescence." The findings of the present study appear to warrant the additional conclusion that voice breaks are not restricted to male children. Taken as a whole, the data of the various studies cited indicate that voice breaks are non-sex-linked phenomena of childhood which typically disappear prior to establishment of adult vocal habits.

TABLE III

EXTENTS, UPPER LIMITS, AND LOWER LIMITS OF VOICE BREAKS

	Seven-Year-Old Group		*Eight-Year-Old Group*	
	N	*AM*	*N*	*AM*
Extent (tones)				
Downward Voice Breaks	24	5.7	26	6.5
Upward Voice Breaks	23	6.0	25	6.4
Total Voice Breaks	47	5.8	51	6.5
Upper Limit (tones above 16.35 cps)				
Downward Voice Breaks	24	24.2	26	23.0
Upward Voice Breaks	23	24.5	25	24.3
Lower Limit (tones above 16.35 cps)				
Downward Voice Breaks	24	19.5	26	16.5
Upward Voice Breaks	23	18.5	25	17.4

For the means presented in Table III the voice breaks were pooled within each age group of 15 subjects, *N* varying thus as shown for downward, upward, and total voice breaks. The mean extents are seen to be in the neighborhood of six tones, or one octave, agreeing generally with previous findings with male subjects (1, 3). Although neither the acoustical nor the neurophysiological bases for voice breaks can be satisfactorily explained as yet, extents of this order may probably be regarded as characteristic in view of this repeated finding.

Table III is also concerned with the location of the upper and lower limits of voice breaks, *i.e.*, the levels from which and to which they take place. If the mean upper limits are compared to the mean pitch levels (Table II, line 2), the similarities will be noted, while the lower limits are distributed about the commonly reported pitch level for the adult male. In these respects also the present subjects resemble male children. *Curry* (1) offered the following explanation for this location in male adolescents:

"During ages when breaks are occurring, it is conceived that the laryngeal anatomy of the normal male is undergoing reorganization which will result in the establishment of a new vocal pitch level at the common level of adult male speech.... The breaks... are down to and up from the region of this adult pitch which probably is to be established in a few years for these subjects, and which adjustment may be assumed to be in progress at age fourteen. ... it has been somewhat surprising to find a large number of breaks occurring at ten years." The immature female subjects of the present study obviously may not be regarded as undergoing laryngeal "reorganization" leading to the ultimate establishment of adult pitch levels in the region of the lower limits of their voice breaks (See above, *Pitch Level,* for pitch levels of women). This location defies explanation, although the hypothesis quoted above appears to be untenable. It seems clear, however, that the location of the lower limits of voice breaks may not be regarded as forecasting the ultimate location of the adult pitch level, and that there probably is no relationship between the two.

The finding of voice breaks in these various samples of pre-adolescent children poses a most intriguing question: Why, since Aristotle, have voice breaks been observed during and associated exclusively with male adolescence, and overlooked in the speech of younger children of both sexes? One explanation might be that they are more readily heard during male adolescence because they take on other acoustical characteristics, *e.g.,* concomitant intensity of wave composition changes. Although direct measurements of such other variables have not been made, oscillograms and recordings of voice breaks, however, indicate no obvious differential of this kind. A more likely speculation would seem to be that the answer to the question may be found in the relationship between the typical location of the breaks (commonly between 24 and 18 tones above 16.35 cps, or vice versa) and the *mode pitch level* of the individual in question. As long as the voice breaks are in the lower portion of the pitch range, down from and up to the mode, they tend to be overlooked as common phenomena of childhood, although they may be heard if the attempt is made. As the adolescent male pitch level lowers toward the adult male level, probably sometime between age 14 and age 18, and probably quite rapidly in most cases, the voice breaks, if they persist, are, after a time, found *above* rather than *below* the mode pitch level. With such a relationship to the mode they are then heard as anachronistic returns to the childhood level against a background of predominantly low pitched, male, quasi-adult phonation, and thus become more obvious to the listener.[1]

[1] *Pedrey* (7), in a non-instrumental study of the oral reading of boys aged 11 to 16, reported only four voice breaks as he listened to his 1014 subjects for a combined total of 84 hours. While this figure, secured from unrecorded and, hence, unrepeatable speech, observed subjectively by one listener, cannot be taken as a valid measure of the frequency of occurrence even of obvious voice breaks, it does suggest that they vary in their obtrusiveness, and are, on the whole, relatively unobtrusive.

Pitch Variability. In Table IV are shown data on measures of certain aspects of pitch variability.[2] These aspects are probably more closely linked to oral reading and speaking ability than to vocal development. In general, the means differ from those of other samples of children and adults (1, 2, 3, 8, 9) by amounts not worthy of remark, except in the case of the 90 per

TABLE IV

MEASURES OF PITCH VARIABILITY. ALL VALUES IN MUSICAL TONES

	Seven-Year-Old Group (N=15)		*Eight-Year-Old Group* (N=15)			
	AM	*SD*	*AM*	*SD*	*Diff.*[1]	t[2]
Total Pitch Range	10.3	1.2	10.0	2.3	—0.3	0.429
90 per cent Pitch Range[3]	3.7	0.7	3.3	1.1	—0.4	1.212
Extent of Inflections						
Downward	1.7	0.03	1.8	0.4	0.1	0.714
Upward	1.4	0.3	1.5	0.4	0.1	0.714
Total	1.5	0.2	1.7	0.4	0.2	2.000
Extent of Pitch Shifts						
Downward	1.7	0.7	1.5	0.6	—0.2	0.800
Upward	2.2	0.5	1.9	0.4	—0.3	2.143
Total	2.0	0.5	1.7	0.4	—0.3	2.143

[1] $M_8 - M_7$

[2] t, 1 per cent, 2.763; t, 5 per cent, 2.048

[3] 95th percentile — 5th percentile

cent range. Here the values resemble those for children aged seven, eight, and ten, and are smaller than for older subjects. This restriction of 90 per cent of the pitches used to a relatively small range probably describes in part the impression of pitch monotony heard in the recordings. In this regard, the companion study of boys (3) observes that "... this reduced variability is not characteristic of the *speaking* voices of children, but may well be typical of their oral reading during the early grades." As will be

[2] "The *total pitch range* is the difference between the highest and lowest fundamental frequencies measured in a given sample and is expressed ... in tones ... an *inflection* is defined as a frequency modulation, either upward or downward, without interruption of phonation, while the term *shift* refers to a change in pitch which takes place between the terminal pitch of a given phonation and the initial pitch of the subsequent phonation." (2) The 90 per cent pitch range is "The range between the 95th and 5th percentiles of the frequency distribution of pitches used; it is expressed in tones." (3)

seen in Table IV, the differences between the means are small and, for the most part, not statistically significant. In the last two items of the table, extent of upward and total shifts, the differences are significant at the 5 per cent level, but are perplexing because of their direction.[3] In general, the phonograph recordings revealed differences in oral reading ability in favor of the older group. Data on the durational characteristics of the performances will be reported later, and will show large differences in the expected direction.

Summary

Two groups of female subjects, one consisting of 15 seven-year-old girls and the other of 15 eight-year-old girls, were selected at random except for age. Under laboratory conditions the subjects read aloud a 52-word primary-level test passage; phonograph recordings were made and subjected to phonophotography and frequency measurement, with the following results:

1. Pitch levels of both groups were located close to Middle C, thus being similar to those of adult females, and to those of boys at ages seven, eight, 10 and 14. The values were approximately one octave higher than similar values for mature males.

2. Voice breaks were found in both groups, comparable to those of male adolescents and pre-adolescents in frequency of occurrence, extent, and location, indicating that they are not exclusively sex-linked or adolescence-linked phenomena.

3. In such aspects of pitch variability as pitch range, extent of inflections, and extent of pitch shifts the two groups were similar to male children.

4. In all important respects the differences between the two groups were not statistically significant.

References

1. Curry, E. T. The pitch characteristics of the adolescent male voice. *Speech Monog.*, 1940, 7, 48-62.
2. Fairbanks, G. Recent experimental investigations of vocal pitch in speech. *J. acoust. Soc. Amer.*, 1940, 11, 457-466.
3. Fairbanks, G., Wiley, J. H. and Lassman, F. M. An acoustical study of vocal pitch in seven- and eight-year-old boys. *Child Develpm.*, 1949, 20, 63-69.
4. Fletcher, H. Loudness, pitch, and timbre of musical tones. *J. acoust. Soc. Amer.*, 1934, 6, 59-69.

[3] Computation of the *F* statistic showed that the variances do not differ significantly. *F*, 1.70 and 1.69, respectively; *F*, 10%, 2.48.

5. MEREDITH, H. V. Stature and weight of private school children in two successive decades. *Amer. J. phys. Anthropol.*, 1941, 28, 1-40.
6. MURRAY, E. and TIFFIN, J. An analysis of some basic aspects of effective speech. *Arch. Speech*, 1934, 1, 61-83.
7. PEDREY, C. P. A study of voice change in boys between the ages of eleven and sixteen. *Speech Monog.*, 1945, 12, 30-36.
8. PRONOVOST, W. An experimental study of methods for determining natural and habitual pitch. *Speech Monog.*, 1942, 9, 111-123.
9. SNIDECOR, J. C. Studies in the pitch and duration characteristics of superior speakers. Ph.D. Diss., State University of Iowa, 1940.

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AN INVESTIGATION OF ONE TOWN'S OPINION RELATIVE TO THE PROBLEMS OF CHILD GUIDANCE[1]

DAVID C. MURRAY

INTRODUCTION

In the early part of 1949 the Junior Chamber of Commerce of Sterling, Illinois contacted the Psychology Department of Northwestern University, inquiring about the probable cost of a short clinic on child guidance to be held in Sterling under the direction of one of the University professors. Upon arrangement of mutually satisfactory terms Dr. T. W. Richards, of the Northwestern Psychology Department, went to Sterling and held the proposed clinic from Tuesday, February 14, to Friday, February 17, 1949.

As held, this clinic consisted of twelve individual clinical interviews with twelve children, arranged through the school systems, spaced at one-hour intervals over the four mornings. During the afternoons and evenings, Dr. Richards addressed a large joint Parent-Teachers Association meeting, held four seminars for varied groups, and served as a moderator of a parent-teen-aged panel.

At Dr. Richards' suggestion, the author travelled to Sterling on March 23, 1949 and talked with various members of the Junior Chamber of Commerce and with the superintendent of the Sterling school system in an effort to gain some idea of the effect of the guidance clinic.

Everyone contacted had high regard for the work of Dr. Richards. Dissatisfaction with the general effect of the speeches and seminars was, however, evident. This is not surprising since such a clinic had, so far as is known, never previously been held in as small a town as Sterling.

Essential information had been unavailable. The town's knowledge of child psychology was unknown. Unknown, too, was the readiness of the population to accept and act upon current theories and information. No basis had existed upon which to determine the type of presentation best calculated to arouse interest and motivate personal utilization of approved principles of child rearing.

PURPOSE

The main problem here presented is one of methodology. It is desired to determine the optimal method; within normal financial and temporal limitations, of ascertaining the state of a town's opinion relative to certain problems of child rearing. Information is needed on the comparative readi-

[1] This material is based on a master's thesis carried on at Northwestern University. Acknowledgment is due to Dr. T. W. Richards for suggestion of the problem and criticism of the manuscript.

ness with which townspeople would turn to various outside agencies for aid with their children. Reliable answers are sought for questions about present willingness to accept aid and advice from psychologists, and about present demand for the full-time services of a child psychologist or psychological agency. An estimation is sought of the effect on a town's entire population of a four-day child guidance clinic held there.

The purpose of this research, then, was to develop a method of determining a town's opinion on such a subject as child guidance. In the process it was hoped to utilize the method developed to make a preliminary report upon town opinion about ways of dealing with problem children; the desirability of seeking aid from outside agencies, particularly child psychologists; and effect of, and opinions about, a child guidance clinic. It was hoped that discernable factors determining any or all of these opinions might be uncovered.

Procedures and Subjects

A brief account of the nature of the town of Sterling is in order. Sterling is a town of approximately 11,400 people situated on the north bank of the Rock River. It is about 100 miles due west of Chicago, and some 25 miles east of the Mississippi River and Iowa. It is on the main route of the Chicago and Northwestern line from Chicago to the Pacific Coast, and is also on the main line of the Greyhound bus, Chicago to the Pacific Coast route. A highly industrialized town, it has several factories, the largest of which is a wire mill. It also has considerable wealth for its size.

In two respects Sterling is somewhat atypical of the average midwestern town. It has a large unassimilated Mexican population living in a run-down section of town by the railroad tracks. Across the river is a twin city of 5,000 people. This city, Rock Falls, is mainly inhabited by factory workers. This probably means that the population of Sterling has a higher proportion of white collar workers, and a lower proportion of skilled and unskilled workers than would otherwise be expected.

There are at least six possible ways of attempting to find out what the people of a town think about bringing up children. They are enumerated below accompanied by pertinent criticisms:

1. Observation of people's actions in dealing with their children to note empirically what methods and techniques are common.

   Temporal and financial limitations, action bias due to observer's presence, and the fact that most discipline is carried out within the home contraindicated this method.

2. Asking people what they think is being done by others in rearing children.

This method is not indicated due to lack of training in observation of most people and preponderant intra-home solution of child-parent problems.

3. Asking people about the methods their parents used with them.

The factors of time lag and memory distortion rule out this method.

4. Asking children what methods have been used with them.

This method seems decidedly superior to the three preceding methods. Contraindications, however, include probable lack of insight into parental methods and possible conscious or unconscious repression, exaggeration or bias in regard to certain disciplinary or corrective actions.

5. Asking people what they do with their own children.

This method, however, personalizes the situation and many people shy away from relating their own actions, particularly if they have the slightest feeling that such actions may not be entirely approved by others.

6. Asking people what they would do if they were responsible for a child.

This is a desirable departure from the fifth method and allows the people with no children to give their opinions more naturally. It gives those who prefer to speak in general terms an opportunity to generalize their answers to some extent, and at the same time those who wish to speak about their own actions in bringing up their children may do so. This method was the one chosen.

The personal interview for gathering opinions was chosen with the expectation of a higher percentage of response than that predicted for a mailed questionnaire, even though a desirable anonymity was thereby sacrificed.

Since there was little precedence for a problem of this sort and it was difficult to make any accurate forecast of the type of answers which might be expected, open-ended questions were employed. It was felt that objective questions, such as multiple choice items, while more amenable to statistical treatment, might fail to elucidate many important types of response.

Specific information desired included: 1) To which agencies would people willingly turn for help in child rearing, and what is the relative popularity of each of these agencies? 2) What actions would people take when confronted by various sorts of problems connected with bringing up children? 3) Did the people feel the need of a specific agency or person who specializes in the problems of children and their parents?

Since a child guidance clinic had been held in Sterling, this seemed the appropriate situation in which to attempt to determine the effect of the program on the town and to note any reactions to the program.

Both for determining the general nature of the population of people interviewed, and to serve as a basis for locating possible causative reasons for varying opinions, certain personal questions relative to the respondents were deemed essential.

The *order of items* in the questionnaire was a key point. Personal information was placed last since it seemed probable that personal questions coming at the start of the interview might irritate the subject, or even result in his breaking off the interview, whereas by the end of the interview rapport should be better and the respondent more in the mood or habit of answering questions. This actually proved to be the case. There were no objections to any of the questions about occupation, education, number of children, etc.

It seemed that questions about the child guidance program, if asked early in the interview, might suggest the interviewer's connection with the clinic and possibly influence responses. Such questions, if asked too soon, might start the respondent thinking about such agencies as psychologists, or about things suggested during the clinic. For these reasons, it was decided that reference specifically to the clinic should come toward the end of the questionnaire, directly before the personal information closing the interview.

For similar reasons an inquiry as to the feeling of need for the services of a psychologist or psychological agency for child guidance was placed toward the end of the interview, directly in front of the queries about the clinic.

In an attempt to sample opinion on various types of child problems and methods of handling them, five fairly general problems were selected. They were: "trouble-making" children, children who lied, who stole, who failed in school, and children who were unusually shy. These questions were made as general as possible and the respondent's answers in no way suggested or restricted.

Information was desired about the agencies to which respondents might turn for advice about the above-mentioned problems. It seemed probable that the suggestion of consulting outside agencies might influence replies about how such problems should be handled. Thus, with some misgivings, the questions on the trouble-making, shy, stealing, lying and scholastically troubled children were placed first.

Since it was desired to determine whether the various agencies would be mentioned by the respondents without actually being suggested, the respondents were first asked which agencies they would consider. They were then specifically asked whether they would consider each of twelve different agencies.

The final form of the questionnaire, that is, the form actually used in conducting the interviews, follows:

THE QUESTIONNAIRE

A.

1. If you were responsible for a child of from nine to twelve years old who was continually in trouble for fighting, talking back to you, and picking on other children, what, if anything, would you do about it?
2. If you were responsible for a child of from nine to twelve years old who was continually stealing things, what, if anything, would you do about it?
3. If you were responsible for a child of from nine to twelve years old who was always telling lies, even when he had no reason to tell them, what, if anything, would you do about it?
4. If you were responsible for a child from nine to twelve years old who was very shy and bashful and had few friends his own age, what, if anything, would you do about it?
5. If you were responsible for a child from nine to twelve years old who was continually failing in school what, if anything, would you do about it?

B. If you were responsible for a child who was in difficulty or trouble for any reason at all, and you didn't know what to do about it yourself, what people or agencies would you think of going to to ask for help?

C. Various people have suggested the following list of agencies and people as being posible places to turn for help if you were responsible for a child who was in difficulty or trouble for any reason at all. As I mention each agency will you tell me whether you would consider turning to it yourself under such circumstances?

1. Church.
2. A school teacher.
3. A school official.
4. A man who specializes in helping mentally sick people, such as a psychiatrist.
5. A state public health or welfare agency.
6. A doctor.
7. Some public official such as the mayor.
8. A man who has studied children and why they act as they do, such as a psychologist specializing in child guidance.
9. Some town or fraternal organization.
10. The police.
11. A close friend.
12. The Y.M.C.A.
13. Some agency not mentioned above.

D.

1. Do you believe there should be some recognized agency or person in Sterling whose sole job would be to advise or help people who were responsible for a child who was in difficulty or trouble, and didn't know what to do about it?
2. If there was such an agency which of the following four methods do you believe should be used to support it?
   a. It should be attached to the school system.
   b. It should be supported separately from town funds.

c. It should be supported by donations and gifts of interested people and organizations.
d. It should be supported by the payments of the people who use it.
e. It should be supported some other way.

E.

1. Did you hear or read anything about the child guidance program held here in Sterling this past February. If so: What?
2. Did you attend any of the talks in the program, and if so what did you think of them?

F.

1. Are you married?
2. Do you have any children? If yes: how many and what are their ages?
3. What is your occupation? (If housewife: What is your husband's occupation?)
4. How many years of school did you have?
5. Do you belong to any church, and if so what?
6. (Interviewer records sex.)
7. (Interviewer records estimated age.)
8. (Interviewer records color and obvious nationality.)

G. Respondent was asked for his name and address. It was explained that this was desired only for purposes of possible reliability checks, and if respondent preferred not to give his name no further attempt was made to get it.

The method of selecting the respondents had next to be decided upon. Use of a random sample (1, Ch. 8 : 2) selected from a complete list of adult townspeople was seriously considered to the point of utilizing it to make a small sample survey. It was at once apparent that with such a method the list of names and addresses from which the sample was chosen must be completely up to date and that time must be available to make repeated calls upon some homes until all the selected persons were found and interviewed. Since time was limited and a completely up-to-date town directory was not available this method was abandoned.

Stratified random sampling was considered. Here considerable extension of time would be needed to fill some of the categories of the strata toward the end of the survey. This method would also have entailed determining the actual proportion of various economic, financial, sex, educational, etc. divisions within the town, information which was not readily available.

It was thus determined that a form of area sampling (3) might be used.

Method of Selecting Respondents

To eliminate interviewer selection in the choice of respondents it was arbitrarily decided that every twenty-fifth house would be approached, but that if there was no one at this house, or if the person refused to be interviewed, the house next to it would be approached, and so on with each succeeding house until one of the houses in that particular vicinity had re-

sulted in an interview. For the purpose of counting the next 25 houses the first house approached was the point of departure. The town was divided in the middle from north to south. The method used was to go east away from the middle of town taking every twenty-fifth house until the end of town was reached. Then the interviewer walked up one block and returned to town along the next parallel street, again taking every twenty-fifth house, but starting his count on the new street from whatever number had been reached with the last house on the previous street. When all the east-west streets on the east side of town had thus been sampled the north-south streets on the east side of town were sampled in the same way.

On turning to the west side of town a small deviation in procedure was followed since it was noticed that the majority of houses faced on the east-west streets. Only the east-west streets were traversed, but in making the count of houses all houses on intersecting streets were counted as far as the next street north, and of course if any of these houses was the twenty-fifth one, it was approached. This greatly cut the amount of actual walking that was necessitated without in any way lessening the completeness of the coverage.

It should be realized that there is no way of knowing to what extent bias may have been introduced due to specifically differing characteristics of the "not-at-homes" and the refusals (3, 4).

Interviewing Procedure

For practical reasons it was necessary to complete the actual interviews over the course of two weekends, specifically those of April 9–10, and April 16–17. Because of time limitations, the author's wife, Pauline J. Murray, aided him in the interviewing. She had been closely observant of the actual development of the questionnaire to be used, and it was believed that her participation during one weekend would not materially bias results in any one direction.

To insure that all respondents would at least be answering questions which objectively were similar, the exact wording was decided upon and the entire questionnaire then memorized by both interviewers (4, 5). When it was suggested that the respondent did not understand the question it was repeated in exactly the same words. If the respondent still seemed not to understand, his answer was recorded as a "don't know" and the succeeding question asked.

Following procedure suggested by the National Opinion Research Council (6) the interviewer's approach was made as brief as possible. In effect, it became standardized as: "Good morning. I'm taking part in a survey and I'd like your opinion on a few matters such as [Followed by the first question]."

This usually resulted in an answer which could be followed up quickly by the second question. In no case did a respondent, having answered the first question, subsequently break off the interview.

Also following standard procedure (4, 6, 7, 8) the interviewer refrained from expressing any opinion of his own, and if asked this by the respondent either agreed with the respondent's expressed opinion, or, if that was not yet known, was noncommittal. Disapproval of the respondent's opinions was, of course, avoided as carefully as possible. Attempts to probe further for more complete answers were made in a manner as completely non-suggestive as possible, such as by repeating the respondent's words with appropriate inflection, asking for examples, or asking him how he happened to notice such a thing (9). The interviewer attempted always to act in a friendly and interested manner towards everything the respondent had to say. The clothing worn by the interviewers was chosen for its neatness and to blend inconspicuously with the type of clothes apparent in Sterling (7).

In general, the respondents raised few questions as to the purpose of the interviews or the organization represented by the interviewer. In cases where such question was raised, the standard answer was: "Lots of people have had trouble with this sort of problem and it was decided that it would be valuable to know just what other people think should or could be done in such cases." Further questions as to who was conducting the survey were met with "An organization in Chicago." In three cases the respondents were not satisfied with this answer, and they were then told that the organization was Northwestern University.

The purpose of leaving the University out of the picture when possible was because it was felt that the respondents might feel more desire to give prestige or knowledge-indicating answers rather than answers indicative of their own most likely actions. It was also felt that the mention of the University might lead some respondents to connect the survey with the child guidance clinic, a possibility which as previously indicated was considered undesirable.

Whenever possible, respondents' answers were recorded verbatim. When this was difficult as much as possible was recorded, and every effort was made to keep the respondent's meaning completely unchanged.

Despite the fact that the interviews took place in large part during evenings and weekends it was found that more women than men were encountered. Therefore, an attempt was made to speak to the man of the house, to maintain as nearly equal representation of both sexes as possible (6).

Ninety interviews were conducted. The number ninety was rather arbitrarily chosen as being a reasonably good approximation of one percent of the adult population of Sterling, and at the same time being a large enough number to lend relative stability to the various types of answers and results. Of the ninety interviews the author conducted seventy and his wife twenty.

Evaluation of Questionnaire Items

Of all questionnaire items, the first five were the most difficult to evaluate. For these items, which dealt with major problems (stealing, shyness,

etc.), it was decided to set up categories of answers. Insofar as possible these categories were kept constant over the five major problems to facilitate comparisons. However, in many cases this was difficult since some of the major problems seemed to call out solutions quite different from those suggested by other major problems. Answers requiring more than one category for dealing with a problem were recorded as coming under any of the categories used, but the dominant answer, in such instances, was indicated.

In enumerating the respondent's reactions to the suggestion that various agencies might be suitable places to which to turn for help and advice on rearing or handling a problem child, five rather than three categories were used for the reason that, in addition to the "don't knows," and the straight "yes" and "no" answers, there were many doubtful or qualified "yes" and "no" replies. The answers which indicated a desire for an agent or person in Sterling whose sole job would be to help with problems of parents and children fell more definitely into the "yes" and "no" categories, which were used together with a "don't know" group.

Since financial support of a person or agency in Sterling seemed relatively limited, the question regarding this possibility was put in the form of multiple choices. Here it was necessary to count simply the number of times each choice had been utilized to give the data appropriate quantification.

Answers to the question on reaction to the child guidance program were divided into five groups: persons who had never heard of it; those who had read about it, but didn't remember enough to have any opinion; those who had heard about it, but didn't remember enough to have any opinion; those who had heard or read about it and did remember enough to be able to give a definite opinion on its effect; and those who had actually been to some of the meetings.

Quantification of factual data about the respondent was routine and presented no difficulties.

All categories of all answers were computed as a percent of the total population of respondents. This was done regardless of whether the total number of answers added up to ninety or more than ninety. It was felt that these percentage answers would provide a clear idea of the character, and of the type of opinions held by the respondents, and would simplify the task of making generalizations from the sample interviewed to the population of Sterling as a whole.

Interrelationships between answers to certain questions and certain factual characteristics for the sample interviewed were evaluated in terms of chi square. In doing this an attempt was made to choose categories which seemed most likely to be related with, or in some way causal of, the category with which they were being paired, in the hope that in this way some of the dynamics back of the various sorts of answers might be uncovered. Chi squares were also computed between certain of the answers to the five major problems in an attempt to learn whether or not people tended to use

certain types of solutions for several of the problems, or whether their answers from problem to problem were independent.

Results

Given limited monetary resources and time, a questionnaire such as was used, coupled with a variation of area sampling, appears to be an acceptable method of ascertaining the state of a town's opinion relative to certain problems. Whether it is the optimal method of doing these things may, of

TABLE I

Breakdown of Survey Sample

Factor	*Number*	*Percent*	*Factor*	*Number*	*Percent*
Marital Status			Age of Children		
Married	88	97.8	All over twenty-one	24	26.7
Single	2	2.2	All under twenty-one.	44	48.9
Sex			Both	5	5.6
Male	39	43.3	Occupational Group		
Female	51	56.7	Professional and		
Education			semi-professional	10	11.1
0–8th grade	30	33.3	Sales and clerical	15	16.7
9th–12th grade	51	56.7	Farmer	3	3.3
13th grade up	9	10.0	Service occupations	3	3.3
Religion			Skilled and		
Protestant	57	63.3	semi-skilled	43	47.8
Catholic	27	30.0	Unskilled	13	14.4
None	6	6.7	Armed forces	3	3.3
Race			Estimated Age (Years)		
White American	85	94.4	20–30	13	14.4
Mexican	5	5.6	30–40	27	30.0
Number of Children			40–50	17	18.8
None	17	18.9	50–60	9	10.0
One	12	13.3	60–70	12	13.3
Two	30	33.3	70–80	7	7.8
Three	17	18.8	80–90	5	5.6
Four	9	10.0			
Five to Eight	5	5.6			

course, be fully determined only by the course of future research in fields such as social and child psychology; at our present state of knowledge and technical competence it seems close to the optimal method.

The character of the sample obtained may be seen by a glance at Table I. The most obvious way in which there seems to be a deviation from a representative sample is that only two unmarried people were interviewed.

It is posited that this is a function of the method used, since homes only were visited, leaving out entirely hotels or hotel-type dwellings in the business district. Many of the unmarried population would doubtless live in such accommodations. There is greater likelihood, also, of the single adult being away from home and engaged in various social activities. There is no way of knowing whether this omission of a representative group of unmarried adults has seriously biased results. To some extent we may assume that the relatively low proportion of people estimated as being in the twenty to thirty age range, as shown in Table I may be due to this lack of young single respondents. Insofar as can be determined, estimated age does not appear to be related to type of response, as we shall see.

Despite the fact that much of the interviewing was conducted at night and over weekends, a preponderance of female respondents will be noted. However, the preponderance is not excessive and probably not serious.

To procure the ninety interviews, a total of 118 homes were called on. At 9.3% of these houses the prospective respondent refused to be interviewed. This is roughly in line with the percentage of refusals encountered by other investigators (3).

At 14.4% of the houses there was no reply. There is some indication that the "not-at-homes" do tend to differ significantly in their opinions from those at home for some types of questions (1, 4). Assuming applicability of these findings to the sort of questions asked here, it is still doubtful whether in an admittedly preliminary investigation such as this such a difference would make a sufficient change to alter the overall results and generalizations arrived at.

Results of the first five questions are enumerated in Table II.

It will be noted that *punishment* and *attempts at verbal persuasion* are the most frequently suggested methods of dealing with the "trouble-making" child. These same techniques are also popular for dealing with both the child who *steals things* and the child who *tells lies*. Turning to the *shy and bashful child* a greater spread of the responses was found with none of them having a majority of the choices.

With the *child who is failing in school*, an attempt to improve the quality or quantity of the child's homework, usually by helping him with it, and less frequently by making him do more work at home or setting definite hours for home study, and turning to an outside agency for help and advice, were the most popular responses found.

Because of the large number of punishment responses to the questions about trouble-making, stealing, and lying children a breakdown of these responses was made (Table III). It will be noted that the most popular sort of punisment appears to be physical, usually indicated by such statements as: "give him a whipping," "lick him, spare the rod and spoil the child," or simply, "I'd spank him."

For the child who was failing in school, a large number of people indicated they would consult outside agencies. This response was, therefore,

TABLE II

Responses to First Five Questions

Responses	Question One[1] *Trouble-Making* Number	Percent	Question Two[1] *Stealing* Number	Percent	Question Three[1] *Telling Lies* Number	Percent	Question Four[1] *Shy* Number	Percent	Question Five[1] *Failing in School* Number	Percent
Attempt to correct the situation by talking to or with the child	29	32.2	35	38.9	42	46.7	16[3]	17.8	20[4]	22.2
Punish the child in some way[2]	35	38.9	20	22.2	22	24.4	0	0.0	3	3.3
Depend on individual child and particular circumstances	10	11.1	8	8.9	6	6.7	3	3.3	5	5.6
Attempt to supervise and regulate child's life to greater degree	4	4.4	4	4.4	0	0.0	0	0.0	0	0.0
Increase the religious influence in child's life	4	4.4	6	6.7	4	4.4	0	0.0	0	0.0
Go to outside agency for help and/or advice	3	3.3	3	3.3	4	4.4	4	4.4	44[5]	48.9
Make child return what he stole and apologize	0	0.0	12	13.3	0	0.0	0	0.0	0	0.0
Be sure child's normal wants sufficiently met for him not to feel he must steal to get what he wants	0	0.0	6	6.7	0	0.0	0	0.0	0	0.0
Threaten or scare child	0	0.0	5[6]	5.6	0	0.0	17	18.9	0	0.0
Attempt to divert or fill needs of child in more acceptable way	0	0.0	4	4.4	0	0.0	0	0.0	0	0.0
Appeal to his pride or better nature by showing trust in him	0	0.0	3	3.3	0	0.0	0	0.0	0	0.0
Set a good example for child	0	0.0	0	0.0	3	3.3	0	0.0	0	0.0

TABLE II (*continued*)

Responses	Question One[1] *Trouble-Making* Number	Percent	Question Two[1] *Stealing* Number	Percent	Question Three[1] *Telling Lies* Number	Percent	Question Four[1] *Shy* Number	Percent	Question Five[1] *Failing in School* Number	Percent
Make light of problem. Think child will outgrow it without action being taken	0	0.0	0	0.0	3	3.3	6	6.7	0	0.0
Attempt to build child's confidence in some way	0	0.0	0	0.0	0	0.0	25	27.5	0	0.0
Attempt to procure friends for child	0	0.0	0	0.0	0	0.0	18	20.0	0	0.0
Would not force or threaten child	0	0.0	0	0.0	0	0.0	8	8.9	0	0.0
Accompany child places to help him get along with others and make friends	0	0.0	0	0.0	0	0.0	7	7.8	0	0.0
Do something to improve homework	0	0.0	0	0.0	0	0.0	0	0.0	49	54.4
Give child more attention and/or show more interest in his work	0	0.0	0	0.0	0	0.0	0	0.0	4	4.4
Miscellaneous (Used by two or less)	6	6.7	3	3.3	8	8.9	7	7.8	11	12.2
Answers which dodge the question	8	8.9	2	2.2	5	5.5	4	4.4	3	3.3
"Don't know" responses	5	5.6	12	13.3	10	11.1	9	10.0	2	2.2
TOTALS	104	115.5[7]	123	136.5[7]	107	118.7[7]	124	137.8[7]	141	156.5[7]

[1] See page 83 for wording of questions.

[2] See Table III for further breakdown of these responses.

[3] Specifically by trying to persuade child to make more friends.

[4] Combination of responses indicating respondent would talk to or with child, and would encourage, praise, or coax child.

[5] See Table IV for further breakdown of this response.

[6] Specifically by threat of police.

[7] Greater than 100 per cent since many people's answers were placed in two categories, and a few answers fit into three or four categories.

broken down by agencies (Table IV). In the majority of these cases, the *teacher* was the popular suggestion. That the *doctor* is suggested in 25% of the cases suggests, perhaps, a possible association in the minds of the respondents between poor school work and underlying ill health or malfunction of a physical nature.

TABLE III

BREAKDOWN BY TYPES OF PUNISHMENT OF RESPONSES OF THOSE WHO WOULD PUNISH A CHILD WHO MADE TROUBLE, STOLE THINGS, OR TOLD LIES

Problem	*Method of Punishment*				
	Physically	Deprivation	Miscellaneous	Unspecified	Totals
Child who fights and talks back.					
Number	21	6	5	3	35
Percent of total responses	23.3	6.7	5.6	3.3	38.9
Percent of those who would punish	60.0	17.1	14.3	8.6	100.0
Child who steals things.					
Number	8	8	1	3	20
Percent of total responses	8.9	8.9	1.1	3.3	22.2
Percent of those who would punish	40.0	40.0	5.0	15.0	100.0
Child who tells lies.					
Number	9	6	2	5	22
Percent of total responses	10.0	6.7	2.2	5.6	24.5
Percent of those who would punish	40.9	27.3	9.1	22.7	100.0

Of the responses to questions one to five, those dealing with "problems," several were utilized for more than one of the questions. Table II may be used to compare the numerical strength of some of these responses for the five questions. It may be noted that *verbal attempts to change the child's behavior* are most frequently suggested for the child who tells lies, and least frequently suggested for the shy and bashful child. *Punishment* is suggested most frequently for the trouble-making child, rarely for the child failing in school, and never for the shy child. This may indicate a feeling that shyness and failing may be something a child cannot consciously help.

The respondents were most likely to *consider the individual* if the problem was "trouble-making," least likely if it was shyness. A possible expla-

nation is that respondents are less likely to think they know the causes of shyness.

However, regardless of knowledge, the respondents seem to have considerably more faith in the efficacy of *interest in* and *attention to the child* who is shy than they do with the other types of problem children mentioned (although the other "problems" symptomatically would seem more obviously to be attention-getting mechanisms, indicating need for attention).

TABLE IV

BREAKDOWN ACCORDING TO AGENCIES OF THE RESPONSES OF THOSE WHO WOULD TURN TO OUTSIDE AGENCIES FOR HELP WITH OR ADVICE ABOUT A CHILD WHO WAS CONTINUALLY FAILING IN SCHOOL

Agency	Number of People giving this Response	Percent of Total Responses	Percent of those who would seek help of Outside Agencies
Teacher	28	31.1	63.6
Principal or Superintendent	4	4.4	9.1
Private Tutor	1	1.1	2.3
Doctor	11	12.2	25.0
TOTALS	44	48.8	100.0

It is again with the shy child that the greatest number of "do nothing" responses were found. This may indicate a general belief that shyness seems, to adults, to be less of a problem than such things as stealing, lying, fighting and failing in school.

On the assumption that it would be worthwhile to determine whether a person who suggested a certain course of action for dealing with the child who stole things would tend to suggest the same solution for the trouble-maker or the child who told lies, the technique of chi square was utilized to provide an answer. Only lying, stealing and trouble-making were considered since similar solutions were frequently applied to all of these. The two suggested courses of action considered were punishment and verbal attempts at correction, since these were the two responses most frequently encountered over all three questions.

Chi squares were computed for use of punishment or non-punishment methods of dealing with the several pairs of problems and also for the use or non-use of verbal attempts at correction for the same pairs of problems. All but one of these chi squares were significant at the 1% level. It would appear from these results that to some extent the respondents tended to

think of stealing, lying, and fighting as being very similar types of problems to the extent that similar corrective devices might well be applied to solving them.

TABLE V

RESPONSES GIVEN TO QUESTION, "IF YOU HAD A CHILD OF FROM 9 TO 12 YEARS OLD WHO WAS IN TROUBLE FOR ANY REASON AT ALL WHAT PEOPLE OR AGENCIES WOULD YOU THINK OF GOING TO TO ASK FOR HELP"; AND TO THE QUESTION OF WHETHER THEY WOULD CONSIDER GOING TO EACH OF TWELVE SPECIFIC AGENCIES

	Percents					
		Would you consider going to (name of one of agencies below) for help?				
Agencies	Agencies, (not specified), would go to	Yes	Qualified Yes	Don't Know, or Not Sure	Qualified No	No
Church	38.9	84.4	7.8	0.0	0.0	7.8
Teacher	18.9	73.3	18.8	0.0	2.2	5.6
School official	13.3	48.9	24.4	1.1	6.7	18.8
Psychiatrist[1]	3.3	30.0	26.7	7.8	10.0	25.6
State Public Health or Welfare Agency	0.0	31.1	18.8	12.2	11.1	26.7
Doctor	11.1	71.1	21.1	2.2	1.1	4.4
Public official	0.0	8.9	15.6	4.4	11.1	60.0
Psychologist[2]	2.2	45.6	16.7	6.7	5.8	25.6
Town club or fraternal organization	0.0	15.6	12.2	11.1	5.6	55.6
Police	3.3	12.2	13.3	2.2	24.4	47.8
Close friend	0.0	58.9	18.9	1.1	3.3	17.8
Y.M.C.A.	7.8	57.8	10.0	6.7	6.7	18.8
Other agency not mentioned:						
Boy Scouts	4.4	10.0[3]				
Miscellaneous	16.6	10.0[3]				
No one, deal with it oneself	11.1					

[1] Worded as: "A man who specializes in helping mentally sick people, such as a psychiatrist."

[2] Worded as: "A man who has studied children and why they act as they do, such as a psychologist specializing in child guidance."

[3] Since these agencies were not specifically suggested by the questionnaire in question C we cannot know, if they were not suggested by the respondent, whether he would have been favorable or unfavorable towards them had they been suggested to him.

Table V affords an interesting comparison between the number of people who, when asked what agencies they would consider consulting about their problems, would think spontaneously of a particular agency and the number of people who say they would favorably consider that same agency when the agency is actually suggested to them. School teachers, for example, would apparently be approved of by four times as many people when they were mentioned by the interviewer, as when merely asked for the names of agencies they would turn to. Nobody mentioned the state public health or welfare agency when asked for names of agencies they might consider, yet when asked specifically if they would consider going to such an agency, 31.1% of the respondents indicated definitely that they would, and 18.8% gave a qualified "yes."

This indicates, probably, that many agencies, while favorably regarded, are not utilized often by people who need them, merely because people don't happen to think of them at the proper time. Possibly a campaign simply and primarily to make the public more continuously aware of their functions and facilities might result in their increased utilization.

Table V also gives an interesting estimate of the relative popularity of various agencies which have partially or wholly entered into child guidance activities at various times. The prestige of the church may be noted in that more people would turn to it than to any other organization. Physicians, too, appear to have tremendous prestige in the child guidance area, being more favorably considered by the respondents than all other agencies save the church and school teachers.

Psychologists were favorably considered by a decidedly larger number of people than considered them unfavorably, but they were considered less favorably in general than school officials, close friends, and the Y.M.C.A., not to mention physicians, teachers, and the church.

Some mention should be made of the omission of the Boy Scouts from the list of 12 specifically suggested agencies. The fact that, on completion of the 12 names and subsequent query as to whether the respondent could think of additional agencies, 10% of the respondents mentioned the Boy Scouts indicates that this organization would probably have ranked with the five or six most popular agencies had they been specifically suggested. The omission of Boy Scouts from the list was a decided oversight; it was, however, the only organization with any great popularity in the child guidance field which was thus omitted.

Table VI shows the answers to the questions on whether the respondent felt the need for a full-time child guidance specialist or agency, and also the numbers who preferred the various possible ways of supporting such an agency or person. That 70% say they feel that there is a need for it certainly indicates a receptive attitude.

No one method of supporting such an agency or person was overwhelmingly preferred. Support from town funds was the modal choice

however; dependence on gifts and donations was the least frequently indicated.

That there tends to be a relationship between responses having to do with need for such an agency and the suggested method of supporting it is indicated by a chi square between the two which is significant at the 1% level.

TABLE VI

RESPONSES TO QUESTIONS D1[1] AND D3[2]

Which method do you believe should be used to support the agency?	*Percents* *Should there be a specific child guidance agency in Sterling?*				
	Yes	No	Undecided	Don't know	Totals
Attached to the school system	18.9	2.2	0.0	0.0	21.1
Supported separately by town funds	25.6	5.6	2.2	0.0	33.3
Supported by gifts and donations of interested people and organizations	8.9	1.1	0.0	0.0	10.0
Supported by the payments of the people who use it	11.1	11.1	1.1	0.0	23.3
Supported in some other way, or "Don't know"	5.6	1.1	1.1	4.4	12.2
TOTALS	70.0	21.1	4.4	4.4	99.9

[1] "Do you believe there should be some recognized agency or person in Sterling whose sole job would be to advise or help people who were responsible for a child who was in difficulty or trouble, and didn't know what to do about it?"

[2] "If there was such an agency which of five specified methods do you believe should be used to support it?"

A rather important deduction may be made from a comparison of the number of people who say "yes" they would consider consulting "a man who has studied children and why they act as they do, such as a psychologist specializing in child guidance" (45.6%, Table V), and the number of people who say that they are in favor of Sterling having a recognized person or agency whose sole job would be to advise or help people with their child rearing problems (70%, Table VI).

Actually both of these questions suggest the use of a child psychologist. There appear to be two major differences in the two questions. One is that the first presents the problem more personally than the second. The other is that in the second question the word "psychologist" is actually used.

Because of the differing personal factor in the two questions, caution must be exercised. It seems probable that we may have here a concrete example of public approval of the function of the child psychologist accompanied by a certain ignorance or misconception of the fact that it *is* the function of the child psychologist. Accompanying this may be a confusion between the word "psychologist" and the word "psychiatrist."

TABLE VII

RESPONSES TO QUESTION E: "DID YOU HEAR OR READ ANYTHING ABOUT THE CHILD GUIDANCE PROGRAM HELD HERE IN STERLING THIS PAST FEBRUARY? IF SO, WHAT?"

Response	Number giving this response	Percent giving this response
No, hadn't read or heard of it	64	71.1
Heard about it but don't remember what	7	7.8
Read about it but don't remeber what	11	12.2
Heard about it and gave opinions on the program	3	3.3
Attended one or more of the talks	5	5.6

Perhaps such data as these may point to the need of a public relations campaign directed at elucidating, in simple and easily understood terms, the function of the child psychologist.

It is apparent from a glance at Table VII that few people remembered reading or hearing about the child guidance clinic held in Sterling and few of those who did read or hear about it remembered anything about it. Hence, no statistical evaluation of the effects of the program on Sterling may be made. That this was not due to lack of publicity may be determined from an evaluation of the following:

PUBLICITY PRECEDING AND ATTENDING THE STERLING CHILD GUIDANCE CLINIC

There were four news stories on the clinic in the Sterling paper, an afternoon daily of wide circulation.

The first story was on Tuesday, February 8, 1949, one week before the start of the clinic. This story told of the clinic and of the plans that were being made in conjunction with it. It had a two-column head on the top of the front page, and its total length was approximately three-fourths of a column.

The second story was on Monday, February 14, 1949, the day before the opening of the clinic. In this story further details of the program and plans being

made for it were related. This story too was about three-fourths of a column long, and started in the upper half of the middle of the front page. In the story all who were interested in the program were invited to attend.

The third story was on Wednesday, February 16, 1949, and told in some detail of the addresses Dr. Richards made to the joint Parent-Teachers Association meeting. This story had a two-column head on the upper half of the front page on columns one and two, ran for about half a column there and was then continued to page 11 where it filled the upper fourth of the page along the top.

The fourth story was on Friday, February 18, 1949, and told of what went on during the program after the joint Parent-Teachers Association meeting. This story, like the others, was on the upper half of the front page, and it carried a two-column head. It was placed beside a picture of Dr. Richards heading a parent-youth panel.

In addition to the newspaper stories the clinic was announced through all the Parent-Teachers Associations and the children were told to tell all their parents about it and invite them to come.

This discussion of publicity and its effect seems to indicate that some more novel or attention catching device is needed to present child guidance principles and theory effectively to the populace of a town in a way which will insure that they remain in the memory of people for any period of time. What method should be used is not within the province of this paper to suggest. Suffice it to say that the traditional lecture and case study method, such as was used in Sterling, apparently had little power to alter the beliefs and opinions of the people; or even to remain for long in their memories.

In an effort to locate some of the dynamics behind answers to several of the questions, chi squares were computed between certain of these answers and certain characteristics of the survey population such as occupational class, education, sex, etc. Chi squares were computed only for those relationships which appeared to be most pregnant with possible significant material, or which promised to throw special light on feeling toward the child psychologist.

All of these chi squares were well below the level of significance. We may conclude that the dynamics of responses to these questions probably lie in deeper, less easily determined factors than those laid bare by this questionnaire.

An attempt was made to determine whether sex exercised any causal effect on the type of correction suggested for the problems of lying and fighting. The modal response for each of these problems was used in computing chi squares with sex. In each case chi square was not significant.

It seems probable that sex tends not to be causal in the opinions expressed about these problems.

Summary and Conclusions

An instrument has been devised for sampling opinion of questions of child raising and on the effects of a four-day child guidance clinic in the

town in which the survey was conducted. Within the necessary time and monetary limitations this instrument appears adequate for its purpose.

This instrument, a personal interview type questionnaire, was administered to approximately 1% of the adult population of a relatively representative medium-sized midwestern town. Respondents were chosen by a modified form of area sampling.

The following conclusions are made on the basis of respondents' answers to the questions:

1. The two most popular methods of dealing with children who fight, lie, and steal are through punishment and some verbal attempt at persuasion.

2. The most frequently suggested methods of helping shy and bashful children are to build their confidence, find them more friends, force them to make more friends, and to attempt verbally to persuade them to make more friends.

3. Concentrating on the quantity of the child's homework or turning to the teacher or physician are the most popular methods of helping a child who is failing in school.

4. The church is the most popular outside agency considered for help in child guidance. Teachers and physicians also enjoy great popularity.

5. More people would consider turning to a psychologist for help with their children than would not consider doing so.

6. Seventy percent of the people in the town felt the need of a permanent child guidance specialist or agency. The most popular method of supporting such an agency was with town funds. Many people also thought it should be attached to the school system or paid for by the people who used it.

7. Despite widespread publicity most of the respondents could remember little or nothing of a four-day child guidance clinic held in the town two months before. It is suggested that the combined case study and lecture method used was not sufficiently novel and dramatic to catch and retain public attention and interest.

8. There appears to be little underlying relation between the factors of age, sex, religion, occupation, education or number of children, and the responses to the various questions.

References

1. Blankenship, A. B. *Consumer and opinion research; the questionnaire technique.* New York: Harper Bros., 1943.
2. Wilks, S. S. Representative sampling and poll reliability. *Publ. Opin. Quart.*, 1940, 4, 261–269.

3. HARRIS, N., and CONNELLY, G. M. Introducing a symposium on interviewing problems. *Int. J. opin. and att. Res.*, 1948, 2, 349–360.

4. HILGARD, E. R., and PAYNE, S. L. Those not at home: riddle for pollsters. *Pub. Opin. Quart.*, 1944, 8, 254–261.

5. KATZ, D. Do interviewers bias poll results? *Pub. Opin. Quart.*, 1942, 6, 248–268.

6. National Opinion Research Center. *Interviewing for N.O.R.C.* Denver: National Opinion Research Center, 1945.

7. BORG, L. E. Interviewing school. *Int. J. opin. and att. Res.*, 1948, 2, 393–400.

8. GARRETT, A. *Interviewing: Its principles and methods.* Family Welfare Association of America, 1942.

9. LAZARSFELD, P. F. The controversy over detailed interviews—an offer for negotiation. *Pub. Opin. Quart.*, 1944, 8, 38–60.

10. CONNELLY, G. M. Now let's look at the real problem: validity. *Pub. Opin. Quart.*, 1945, 9, 51–60.

11. RUGG, D. Experiments in wording questions: II. *Pub. Opin. Quart.*, 1941, 5, 91–92.

12. KATZ, D. Three criteria: knowledge, conviction, and significance. *Pub. Opin. Quart.*, 1940, 4, 277–284.

13. BLANKENSHIP, A. B. The choice of words in poll questions. *Social. Soc. Res.*, 1940, 25, 12–18.

14. GOODMAN, R. and MACCOBY, E. E. Sampling methods and sampling errors in surveys of consumer finances. *Int. J. of opin. and att. Res.*, 1948, 2, 349–360.

PREFERENCE OF ADOLESCENTS FOR RORSCHACH FIGURES[1]

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INTRODUCTION

The purpose of this study is to explore the possibility that the relatively simple task of ranking the blots in order of preference might serve as a rapid method for getting at the crucial features of the total Rorschach performance.

Literature Bearing on the Problem

Most orthodox Rorschach investigators seem to believe with Rabin and Sanderson (5) "that the obtainable picture is a function of the configuration or pattern Gestalt; the lifting of any single factor from its context, therefore, may violate Rorschach's basic principle." In the present investigation an attempt was made to preserve theoretically this Gestalt approach.

Rorschach (6) asks the question "Is the figure conceived and interpreted as a whole or in parts?" Rorschach records provide some information on this topic. Subjects respond to the blot as a whole, to details, and also to rare details. An individual's approach type is thought to show how he uses his functioning intelligence. However, this does not show whether a single response based on a Gestalt impression of each of the ten Rorschach cards could be used for diagnostic clinical purposes.

An investigation by Wallen (7) sheds some light on the possibility of using rankings of the Rorschach cards to differentiate clinical groups. The purpose of his study was to determine the pleasingness of each card when conditions of sequence, position, and color were altered. Reactions of stable and unstable men were compared; the unstable men were about to be discharged for psychiatric unsuitability to military service. Wallen obtained the following results:

1. Card VI differentiates stable and unstable groups better than any other card.
2. Card IX also differentiates between stable and unstable groups in both chromatic and achromatic forms.
3. Cards II, VI, and IX arouse more dislike reactions in unstable men than in normal men, but the importance of color in producing this dislike is confirmed only for card II.
4. Simultaneous comparison of chromatic with achromatic versions of the standard color cards reveals that unstable men prefer the achromatic version (i.e., are color-shy) of three of the cards.

[1] This material is taken from a master's thesis carried on at Northwestern University. Acknowledgment is due Dr. T. W. Richards for his help and advice, and to Mr. M. S. Johnson, Dean of Boys, Miss T. Freeman, Clinical Counselor, and the Personnel Department of Maine Township High School for their cooperation.

5. Stable and unstable groups of men differ in their expressed liking for certain Rorschach cards. These cards, II, VI, and IX, are those which clinicians note as the usual source of shock during Rorschach examinations.

Wallen concludes from his data that unstable individuals show affective reactions to the cards which differentiate them from stable persons.

In Wallen's study the men were not asked to rank the cards in order of preference; the subjects were asked to tell whether they liked or disliked each card, and the percentage of groups liking each card was determined.

The subjects used in the present study were asked to rank the cards from the one liked most to the one liked least after the Rorschach protocol had been obtained.

The subjects used in this investigation were "normal" high school pupils rather than clinical groups.

Procedure

Subjects for this experiment were secured during the spring of 1949 at Maine Township High School, which is situated between Park Ridge and Des Plaines, Illinois. All the subjects were juniors in high school; fifteen girls and fifteen boys were used. In order to secure a random sample of the junior class, alphabetical lists of the boys and girls were numbered and then subjects were selected from a table of random numbers.

All the subjects were spoken to beforehand and asked to take a test; they were not told what kind of a test. They were informed that the test was not to provide information about themselves personally, but merely to provide subjects for a research project. The thirty juniors were tested in a room adjacent to the Personnel Office.

Each subject was given the Rorschach test, both free association period and inquiry. After the entire Rorschach protocol was secured, the subject was asked "to put the Rorschach cards in your order of preference, from the one liked most to the one liked least. Spread the ink blots out on the table any way you desire so that you can see the cards better."

The subjects were then asked to put the five black-white cards in that same order, then the five colored cards. This was done to see if they had changed their minds about the order of preference. It was felt that this would increase the reliability of the rankings. After the rankings had been secured, the subjects were asked why they had liked the two cards which they preferred most and also why they disliked the two which they preferred least.

Characteristics of the Group

The mean age of the girls tested was 16.83 years, with a sigma of 6.49 months. The boys' mean age was 16.97 years, sigma 5.23 months. The difference in age was not significant statistically.

Henman Nelson I.Q.'s were available on the entire sample population. The mean I.Q. for the fifteen girls was 110.40, sigma, 14.74. For boys the mean I.Q. was 112.67, sigma, 12.70. There was no statistically significant difference between the boys and girls in I.Q.

Table I summarizes the results obtained on the thirty adolescent subjects on specific Rorschach test factors. The following points show how high school juniors compare with Beck's (2) normal adult control group.

TABLE I

RORSCHACH TEST RESULTS

Rorschach Test Factor	*Mean*		*Sigma*		*Range*	
	Girls	Boys	Girls	Boys	Girls	Boys
F+ percentage	74.60	78.93	10.23	8.58	53 – 90	68 – 100
A percentage	51.86	47.06	13.32	13.89	25 – 77	26 – 75
P	5.86	5.33	1.91	1.96	2 – 9	2 – 9
s	2.30	3.53	1.58	3.61	0 – 6	0 – 13
T/R (seconds)	33.26	47.26	9.98	11.57	18 – 60	24 – 180
T/first R (seconds)	14.80	21.66	7.15	13.55	9 – 34	7 – 64
Z	26.57	27.70	20.82	20.27	5.0 – 60.5	0 – 78.5
No. of R	29.06	31.66	10.92	17.73	13 – 53	9 – 80
No. of content categories	9.53	10.20	3.49	4.21	4 – 15	4 – 20
M	2.66	1.80	2.16	1.76	0 – 9	0 – 6
C	4.56	4.70	2.55	4.25	0.5 – 9.5	0.5 – 17

1. The mean F+ percentage for Beck's control group was 83.91, the standard deviation 8.12. The mean F+ for these subjects was lower, suggesting that the adolescents do not have as much conscious control and respect for reality as normal adults. F+ supposedly varies with affectivity, so that it is reasonable that some emotional distortion might be expected from adolescents. Sixty per cent is considered by Beck the critical minimum for the healthy; two of our girls did not meet this criterion, having F+ percentages of 53 and 56.
2. Beck's control group had a mean of 46.87 with a standard deviation of 17.58 for per cent animal responses, or A per cent. According to Beck's view of the Rorschach, this group shows, therefore, a slightly greater amount of adaptive thinking, more conformity or stereotyping.
3. Beck found normal adults to have a mean of seven popular responses with the "healthiest" individuals going to eight or nine. The fact is "that most intelligent persons, those entirely liberated in their percep-

tions and least stereotyped, can still be, and most often are, socially quite adaptive in their outward behavior." According to this criterion, these adolescents show less conventionality and ability to participate in the common thinking of their culture than do normal adults.

4. Beck (3) found that 0 to 1 white space percepts was average while four white space percepts were high. Rorschach states that this type

TABLE II

GIRLS' RANKINGS

Subject:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Card I	8	9	6	8	10	9	9	8	3	6	4	8	3	8	9
Card II	9	5	10	4	9	5	4	7	8	9	10	4	9	7	5
Card III	5	4	4	1	4	3	3	4	5	8	5	5	6	10	4
Card IV	7	8	3	9	6	8	8	10	4	4	6	9	7	5	8
Card V	4	10	9	2	7	7	7	9	2	1	9	10	4	6	10
Card VI	10	2	7	10	8	10	10	6	6	5	7	7	5	4	7
Card VII	6	1	1	5	5	6	1	5	1	10	8	6	8	9	3
Card VIII	3	6	8	3	3	2	6	2	7	2	3	3	10	3	6
Card IX	2	3	2	7	2	4	2	3	10	3	1	2	1	2	2
Card X	1	7	5	6	1	1	5	1	9	7	2	1	2	1	1

of response "always indicates some tendency towards opposition." The number of white space responses found in this group (2.30 for girls and 3.53 for boys) suggests the presence of an attitude of rebellion, contrariness, or hostility, if we subscribe to Rorschach's theory.

5. The central tendency of the time per-first-response for all the cards is around 20 seconds, according to Beck. The adolescent girls' mean for T/first R was 5 seconds lower than this.
6. For Z the mean of Beck's group was 31.10, the standard deviation being 26.44. Thus, the subjects in this experiment (with a mean of 26.57 and 27.70) were slightly lower in their capacity to grasp relations not perceived by others.
7. Thirty-one responses is average, according to Beck. In this respect these adolescents barely differed from Beck's norms.
8. Beck states that as far as the number of content categories used is concerned, breadth varies directly as functioning intelligence. Most of these subjects were fairly close to the results of "normal" adults in this respect, only a few showing constriction, or reduced range of content.

9. The means for color (emotionality) and human movement (inner living) show that these subjects give more C than M. Thus there is suggestion that they were more extraverted than introverted. These adolescents seem to be in emotional contact with their environment and minimally to be adjusting by retreating to fantasy living. Only two girls and three boys showed an experience balance (ratio of color to movement) in which M was greater than C.

TABLE III

Boys' Rankings

Subject:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Card I	2	5	6	7	6	3	6	9	10	10	8	5	9	8	5
Card II	1	9	4	8	2	7	9	6	6	5	3	4	5	9	9
Card III	6	2	5	2	9	1	4	4	7	4	1	6	6	10	8
Card IV	4	8	8	5	10	9	8	5	4	9	4	9	7	5	7
Card V	8	6	9	9	7	8	7	10	8	6	9	7	10	6	6
Card VI	5	7	7	10	8	10	5	8	5	7	10	10	8	4	3
Card VII	7	1	10	3	4	6	10	7	9	8	2	3	2	7	10
Card VIII	10	3	3	1	3	2	1	3	3	3	7	2	4	1	2
Card IX	9	4	2	6	5	5	2	2	1	2	6	1	3	2	1
Card X	3	10	1	4	1	4	3	1	2	1	5	8	1	3	4

Results of Ranking

Tables II and III present the ranks given each card by each subject. Table IV presents mean rank for each card by sex, with sigmas for each group. Figure 1 shows these relative rankings in order, from first to tenth. Inspection of Figure 1 shows that, considering both sexes together, cards IX and X, and close behind them, card VIII, are most preferred. These are, of course, the multicolored figures. In a cluster as least preferred by both sexes are cards V, VI, I and IV, all achromatic.

In these selections, the achromatic card VII seems to be chosen close to the four preferred colored cards, and to precede the chromatic II which seems to be chosen later with the four unpopular achromatic cards.

In general, then, colored figures (with the exception of II) are preferred, while achromatic figures (with the exception of VII) are rejected until later.

Sex Differences

Tests of the significance of differences between sexes in their preference for the cards were made for both means and sigmas. The greatest sex

difference for absolute rankings is found on card II in the direction of acceptance by the boys. However, this difference is of slight statistical significance, since it could occur 20 per cent of the time by chance alone. It might be expected that adolescent girls would respond unfavorably to this card. The red spots on Card II are thought to suggest blood to them,

TABLE IV

MEAN RANKINGS OF GIRLS AND BOYS

	Girls (N=15)		*Boys* (N=15)	
	Mean	Sigma	Mean	Sigma
Card I	7.20	2.20	6.60	2.33
Card II	7.00	2.22	5.80	2.59
Card III	4.73	2.06	5.00	2.70
Card IV	6.80	2.01	6.80	2.04
Card V	6.47	3.04	7.73	1.41
Card VI	6.93	2.33	7.13	2.25
Card VII	5.00	2.95	5.93	3.09
Card VIII	4.47	2.41	3.20	2.32
Card IX	3.07	2.32	3.40	2.27
Card X	3.33	2.75	3.40	2.58

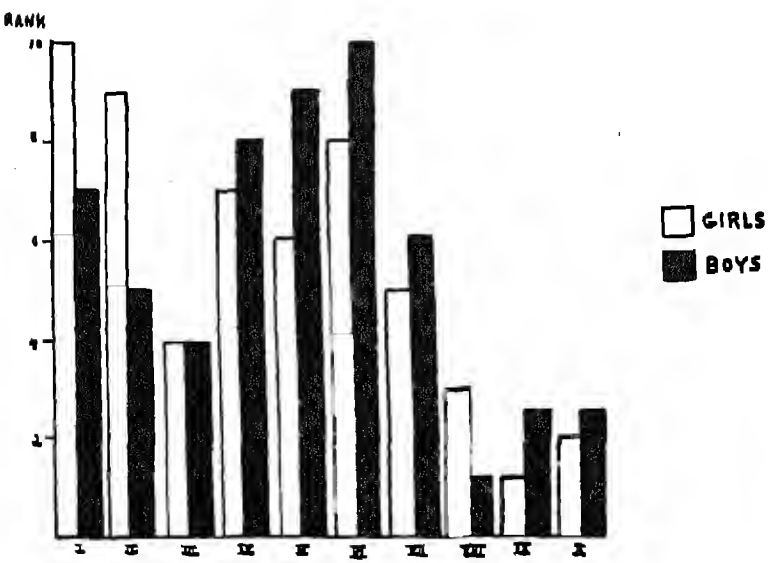

Fig. 1. Comparison of girls' absolute ranks with boys' absolute ranks.

which is upsetting at this particular age level. However, card III, which has an identical red, showed no differentiation at all between the sexes.

Tests of the significance of differences between sexes were negative except for a markedly lower *variability* in *boys* for card V. Boys, when compared with girls, not only disliked this card, but they are extremely consistent in this dislike.

Rank difference correlation between the mean preferences of boys and girls yielded a coefficient of .72, showing a fair degree of agreement between sexes.

Differences according to prior Preference for Color

Subjects who chose an achromatic card first, of which there were six (Group A), were compared with those who chose a colored figure first (Group B, $N = 24$). Differences between these groups in the ranks for the figures were insignificant statistically except for card VII, preferred by Group A, and card X, preferred by Group B.

Rank difference correlations of the mean preferences for these two groups yielded a coefficient of .12, indicating considerable difference between the two groups.

Evaluation of Individual Conformity

Rank order correlations were computed between each individual and the absolute ranks of his sex. For girls they range from —.47 to .98 with median correlation being .59. For boys they range from —.28 to .84 with a median correlation of .62.

Here is the Rorschach record of the girl (subject 5 in Table II) who conformed the most ($r_p = .98$):

Age: 16 yrs., 1 mo.
I.Q.: 154

R total 51

W	11 (s 1)	M	8	A	13	F+	81
D	36 (s 1)	M.Y	1	H	11	A	25
Dd	4	CF	5 (—, 2)	Hd	9	P	8
	—	FC	4	Ls	4	s	2
	51	FV.Y	1	Bt	4		
		YF	2	Im	2		
		FY	7 (—, 1)	An	1		
		F+	17	Rc	1		
		F—	4	Mu	1		
		F	2	Bl	1		
			—	Fd	1		
			51	Pr	1		
				Cg	1		
Z 48				Art	1	Total time	20′
Ap W(I) D Dd)					—	T/R	23″
Seq irregular		Exp 9/7			51	T/first R	11″

Figure I (11″)

1. "Looks like two witches with wings hanging on to something"
2. "Or else like a Hallowe'en mask"
   "That's about all I see"
3. "Like a bell in the center" (Dd 24)
4. "Like an eagle on the back, some sort of bird" (atypical—upper half)

Figure II (15″)

5. "Two people sitting down with their hands in front of their faces together"
6. "Like two people standing upside down on their heads" (D 1)
7. "Like a couple of animals—don't know what kind" (D 1 and D 2)

Figure III (5″)

8. "Two people trying to lift something" (D 1)
9. "In the middle is a hair bow" (D 3)
10. "Someone with arms raised up in the air" (D 4, 5, and 11)
11. "These are chickens with long tails" (D 2)

Figure IV (5″)

12. "Two boots" (D 6)
13. "Flower up at the top" (D 3)
14. "Two arms hanging out at sides" (D 4)
15. "Hands" (Dd 26 and Dd 28)
16. "Like a person" (D 6)
17. "Two profiles"
18. "Two animals together" (D 1)

Figure V (3″)

19. "Like a bat, the flying—not a baseball bat"
20. "Two heads" (D 5)
21. "Some legs" (D 1)
22. "Might be a corsage with ribbons"

Figure VI (30″)

23. "Up there is a face, a profile" (D 6)
24. "Like some bushes and reflection in the water below"
25. "Here's another profile" (D 4)
26. "Like a bearskin rug" (D 1)
27. "Some sort of animal or bug" (D 3)

Figure VII (11″)

28. "Two Indians doing a dance"
29. "Rock formations"
30. "Two girls dancing"
31. "And a hand"

Figure VIII (4″)

32. "Some sort of sea crab or lobster" (atypical D 2, 4, and 5)
33. "And bones" (D 3)
34. "Some sort of animal" (D 1)
35. "As a whole, a symbol for a coat-of-arms or something"
36. "And a basket" (D 2)

Figure IX (11″)

37. "A fountain of water" (D 5)
38. "Two old ladies pumping water" (D 1)
39. "And a head of a man" (D 1)
40. "And an ice cream sundae" (Ds 8)
    "Another profile" (D 1—precision alternative)
41. "Two men with pointed heads" (D 3)
42. "And a dagger or sword" ("Red looks like blood dripping off") (D 5)

Figure X (17″)

43. "Lots of different sort of fish"
44. "Octopus" (D 1)
45. "Crabs" (D 7)
45. "And sea coral" (D 9)
47. "Leaves" (Dd 21, 22 and 23)
48. "Two old ladies" ("Like bent a little bit") (D 9)
49. "Two sea horses" (D 4)
50. "And spurs, like on a horse" (D 3)
51. "Trunk of a tree with roots" (D 11)
    "Radio man's earphones" (D 3)

This is the record of the least conforming girl (No. 9 in Table II) ($r_P = -.47$):

Age: 16 yrs., 6 mos.
I.Q.: 113

R total 16

W	2	M	2	A	9	F+	90
D	12	CF	1	H	2	A	56
Dd	2 (s 1)	FC	1	Hd	1	P	4
	—	FY	2	Rc	1	s	1
	16	F+	9	Cg	1		
		F—	1	Hh	1		
Z	22.5		—	Mu	1	Total time	11′
Ap	(W) D Dd		16		—	T/R	41″
Seq	methodical	Exp	2/1.5		16	T/first R	27″

Figure I (13″)

1. "Sort of like two little angels—on each side with some sort of thing in the middle"
2. "Bell or something like that" (Dd 24)

Figure II (25″)

3. "Can't think of anything it looks like"
   "Two dogs facing each other" (D 1)
   "Can't see anything else"

Figure III (25″)

4. "Two men on either side of a table"
5. (D 1 and D 7)

Figure IV (55″)

6. "A boot" (D 6)
7. "Dog's head" (atypical D)

Figure V (4″)

8. "Butterfly"

Figure VI (23″)

9. "This looks like some sort of insect" (D 3)
10. "A face, sideways" (D 4)

Figure VII (20″)

11. "Two little dogs facing each other" (D 2)

Figure VIII (7″)

12. "Animal on either side" (D 1)
"Guess that's all"

Figure IX (75″)

13. "Some sort of an animal" (D 1)
14. "Could be a mask" (Dd 22 and Dds 23)

Figure X (35″)

15. "Frogs" (D 8)
16. "Caterpillar" (D 4)
"Guess that's all"

The following record is that of the boy (No. 8 in Table III) conforming most ($r_P = .84$):

Age: 17 yrs., 4 mos.
I.Q.: 117

R total 37

W	4 (s 1)	M	1	A	17	F+	77
D	29	C	1	Ad	3	A	54
Dd	4	CF	2 (—, 2)	H	3	P	9
	—	FC	2 (—, 2)	Hd	2	s	1
	37	Y	1	Fd	2		
		FY	3 (—, 1)	Cg	2		
		FV	1	Ge	2		
		F+	20	Im	1		
		F—	6	Hh	1		
			—	Art	1		
			37	Ls	1		
				Pr	**1**		
Z 9				Cl	1	Total time	27′
Ap (W) Dl Dd					—	T/R	44″
Seq methodical		Exp 1/4.5			37	T/first R	17″

Figure I (17″)

1. "Well, looks something like a bat"
"I don't see anything else it could be"

Figure II (51″)

2. "Something like a pair of feet here" (D 2)
3. "This way like a map of the United States somewhat—just the black part" (D 6)
   "About all I can make out"

Figure III (7″)

4. "Looks like two people standing here"
5. "This looks like a butterfly" (D 3)
6. "Something like a horse with a long tail" (D 2)
7. "Man could be standing over a kettle" (D 8)
8. "These two look like a pair of shoes" (D 4)
9. "That could be a fish" (D 5)
10. "Think that's all"

Figure IV (11″)

11. "Whole figure looks something like a man laying down as you look at him from his feet"
12. "Something like a bearskin rug"
13. "This looks like a caterpillar" (D 1)
14. "These are shoes" (D 2)
15. "This looks like a snake here" (D 4)
    "That's about all"

Figure V (5″)

16. "That looks more like a bat than the first one"
17. "This in here looks like some kind of a person" (D 5)
    "That's all"

Figure VI (18″)

18. "Top part looks like an Indian totem pole" (D 3)
19. "Looks like dark clouds in the distance" (D 4)
20. "Could be a rug of some kind of animal" (D 1)
21. "Looks something like the head of a beetle"
    "Think that's all"

Figure VII (18″)

22. "Could be an island with a sort of a bay in here"
23. "This looks like a monkey down on his knees" (D 2)
24. "This here could be a dam with a river above it" (Dd 29)
    "Can't see anything else"

Figure VIII (14″)

25. "Could be a dog" (D 1)
26. "Could be a spider web" (D 3)
27. "That's all"

Figure IX (6″)

28. "These look like an ocean sea horse" (D 3)
29. "Could be a bust of a man" (D 4)
30. "This looks like an apple cut in half" (Dd 24)
31. "This looks like a frog sitting" (D 1)
    "Think that's all"

Figure X (20″)

32. "Could be an octopus" (D 1)
33. "Some sort of a bug" (D 8)
34. "This looks like a rabbit's head" (D 5)
35. "Head of a shark" (Dd 22)
36. "Fried egg" (D 2)
37. "Drapes around the window" (D 10)
    "Think that's all"

Finally, the least conforming boy (No. 1 in Table III) presented the following Rorschach record ($rp = -.28$):

Age: 17 yrs., 6 mos.
I.Q.: 128

R total 21

W	6 (s 2)	M	1		H	1	F+	91
D	15 (s 4)	M.FC	1		Hd	2	A	43
	—	C	1		A	9	P	8
	21	FC	1	(—, 1)	Ls	3	s	6
		Y.V	1		Na	2		
		CF.V	1		Ob	1		
		FY	4		Art	1		
		F+	10		Pr	1		
		F—	1		Cg	1		
Z	40.5		—			—	Total time	13′
Ap	W1 D		21			21	T/R	34″
Seq	methodical	Exp	2/3.5				T/first R	17″

Figure I (7″)

1. "Bat or something" (atypical D, entire upper half)
2. "Or landscape"
   "Looks better upside down—landscape or something. Shadows on lake or river late at night"

Figure II (8″)

3. "My first impression, two comic strip characters playing patty cake—Woody Woodpecker"
4. "Sun going down between hill a long way off—top half" (D 3)

Figure III (6″)

5. "Two eighteenth century men bowing to each other or arguing over who's
6. going to carry a package" (D 1 and D 7 with white space)
7. "Pretty much like a good bow tie" (D 3)

Figure IV (9″)

8. "Pair of feet from a clown" (D 2)
9. "Looks like a bearskin tacked out on a wall like we used to do"
   "Just like a pair of Army combat boots" (D 2)

Figure V (14″)

10. "Looks like a flying animal of some kind"
    "Large butterfly, the antenna"
    "Can't see anything else"

Figure VI (25″)

11. "Doesn't bear any resemblance to anything"
"From that end, pretty picture of rather symmetrical tree"

Figure VII (8″)

12. I've got pottery at home that looks like that. Deer bookends—turning head up as if looking over shoulder"

Figure VIII (9″)

13. "Some animal, like statue of jungle cat standing on top of a ridge, peering
14. over" (D 1 and D 2, 4, 5)

Figure IX (3″)

15. "Sea horses" (D 3 with white space as eye and mouth)
16. "Like Chinaman; eyes, nose, mustache—Fumanchu type of Chinaman" (D 4)
17. "Could easily be profile—eyes, forehead, shock of hair, nose" (D 1)

Figure X (85″)

"Pretty—can't make anything out"
"It's just like quite a few different colors"
(Urged to respond)
18. "Bears a faint resemblance to a beach scene" (atypical D)
19. "Large spider crab with large claws" (D 1)
20. "Rabbit's head right there, green" (D 5 with white space as muzzle)
21. "Crude drawing of parrot" ("very crude drawing like my sister would make") (D 8)

Investigation into factors related to the preferences shown by the rankings. Rank order correlations were computed between each individual's rankings and individual ranks based on time per-first-response, number of response, and F+ percentage on the ten ink blots. Table V presents median, maximum and minimum coefficients for three Rorschach indices.

From the foregoing it would seem that preference rankings are not determined by reaction time, productivity (R), or points of ego strength (F+ percentage). The highest median correlation was .40. This suggests

TABLE V

MEDIAN, MINIMUM, AND MAXIMUM COEFFICIENTS FOR THREE RORSCHACH INDICES

	Median		*Minimum*		*Maximum*	
	Girls	Boys	Girls	Boys	Girls	Boys
T/first R	.02	.07	—.66	—.57	.71	.83
R	.36	.40	—.74	—.16	.79	.77
F+ percentage	.09	.24	—.40	—.40	.62	.65

a slight, though variable, relationship between preference for a card and productivity for it. In general, these correlations suggest that the subject responds to each card as a "Gestalt," and that no single factor alone determines his response.

Correlations between rankings and number of color responses for each figure were as follows:

Card II	—.19
Card III	.06
Card VIII	—.21
Card IX	—.40
Card X	—.20

Correlations between rankings and number of shading responses for each figure were as follows:

Card I	.16
Card IV	—.24
Card V	.32
Card VI	.36
Card VII	—.001

For the colored cards the later the preference, the fewer were the color responses. In other words, with earlier preference for the card, the more color was used, and, thus, theoretically, the more the blots were responded to affectively. The correlations between rankings and the amount of shading demonstrated in the responses were low. A positive correlation was obtained on cards I, V, and VI. This means that the later the preference for the specific card, the lower the amount of shading determining the responses to that card. Theoretically, in other words, these cards tended to be preferred which presumably do not arouse dysphoric feeling, passivity, or inferiority feelings.

Surveying the *stated* reasons for preference, the largest number of both boys and girls preferred a card because of its color, then because of the content which they saw in the blot, and lastly because it seemed meaningful. Girls gave a specific ink blot a late ranking because of its content, then because it seemed meaningless to them, and a few because it was lacking in color or they did not like the color. Boys preferred cards least because they were meaningless, and secondly because of their dislike of the color or shading.

Examples of why the card was liked or disliked because of meaningfulness are "Can't make much out," "Because definitely something," "Doesn't mean anything to me," or "Hard to distinguish anything." Content determining choices is shown by such statements as "Look ready to kill each

other," "Vampire—dislike most," "Because pretty butterfly," or "Like bunnies, fountain, or idea of church." Specific illustrations of color determining like or dislike are "Color helps see better," "Color combination," "Color repulsive," or "Don't like all black."

Discussion

Statistically significant differences between groups were obtained on cards V, VII, and X. Rabin and Sanderson (5) list the following reasons why some cards are more difficult and less preferred:

1. There is evidence showing that some cards are *objectively* more difficult while others are easy in terms of the length of response time.
2. There is also evidence that proves that some cards are *objectively* more productive (in terms of average number of responses) than others.
3. Considerable doubt is, therefore, cast upon the validity of the "color shock" which is attributed to the suddenness of the appearance of color in the temporal series. It may well be due to actually greater difficulty of certain cards and less potentiality of others to evoke responses.

Another reason why a blot may be disliked, mentioned by Wallen (7), is that "in some instances the shape of the blot makes it hard to develop a meaningful percept, and this difficulty may produce an emotional reaction in the insecure person."

The first question to ask in regard to the present data is "Why is card V one of the least preferred blots?" In general clinical experience, it is cards IV and VI which are especially likely to produce shading shock rather than card V. Rorschach stated that V was the easiest form to interpret, almost always as a "bat" or a "moth." Wallen describes card V as a simple, compact figure which is often seen as a butterfly; he also found that this card was popular with his subjects. He found that "even when the sequence is reversed and it follows four achromatic cards, as in the photo set, its popularity is relatively unchanged." Another finding of his was that with his unstable groups, card V ranks highest in popularity, probably because it is quickly seen as a bat or butterfly.

Only in one instance did a subject, a girl, like card V most. It was the least preferred ink blot for three girls and two boys. Fourteen girls and eleven boys gave popular responses to card V, fourteen girls and eleven boys gave at least one whole response, and four girls and five boys made responses partially determined by shading.

Just what the factor or factors are which make this particular ink blot unpopular with these adolescents has not been determined. Evidently there is something about card V which makes them respond to it unfavorably. Perhaps the heavy black shading arouses anxiety in this age group. Why there would be more variability in the girls' rankings and more constant dislike of this card by the boys is also unknown.

Card VII was the most liked ink blot by four girls and one boy. In general, it was also the most liked of the achromatic cards. This card is supposed, by some, to represent the mother figure and security. Perhaps those who rank it first had a greater need for security than those who chose a chromatic card first.

Rorschach states that card X is composed of disparate blots and that whole answers are, for most subjects, almost impossible. Eight girls and

TABLE VI

TABLE OF APPROACH TYPES

Girls		*Boys*	
Approach Type	No. of Subjects Using	Approach Type	No. of Subjects Using
W D Dd	5	W D Dd	1
W D I	2	W D (Dd)	1
W D (Dd)	2	W D Dd I	2
W I D Dd	2	W I (D) Dd	1
W I (D)	1	W I D (Dd)	1
(W) D Dd	2	W I Dd	1
(W) D I Dd	1	(W) D I	1
		(W) D D I	5
		(W) D I Dd	1
		D I Dd	1

two boys gave a popular response to this card, two girls and two boys did not have color as a factor determining a single percept, seven girls and five boys gave at least one whole response, and eleven girls and ten boys responded with three D percepts or more. Card X was ranked first by seven girls and four boys; it was ranked last by only one boy.

The Pearson r between rankings and amount of color used in the responses to card X was —.20. Thus, there is some suggestion that the more the card was preferred, the more was the amount of color used in determining the responses. Why the t-test between the mean rankings of Group A and Group B should be significant at the one per cent level can only be conjectured. It is interesting to note that the t-test for card IX was extremely insignificant. Perhaps for the six subjects preferring a black-white card, neurotic shock did not manifest itself until the last ink blot. This would account for their ranking this ink blot as one which was less preferred.

No statistically significant difference was found between girls and boys on cards IV and VI. Card IV has been suggested as representing the paternal figure and authority while card VI is the one which is supposed to have

most provocation of sexual material. Furthermore, there was no significant difference between boys and girls on card VII which presumably represents the maternal figure and security.

Table VI shows the approach types used by the fifteen girls and the fifteen boys. It would seem logical that those individuals who respond to the whole blot primarily and those who respond to details primarily, would form their Gestalt impression of the ink blots in a similar manner. The one group's perception would be determined by the entire ink blot; the other group's impression would be determined by the details of the card which attracted their attention.

The rank order correlations between individual's ranking and T/first R, No. of R, and F+ percentage showed that none of these factors is a determinant of the rankings (judging from the median correlations). This suggests that multiple factors determine an individual's impression of a specific ink blot.

The correlations between individual's ranks and the rankings of their group illustrate the possibility of using normative rankings for diagnostic clinical purposes. Comparison of a patient's rankings with the normative ranks for his age group would show whether he differed greatly from normal individuals. Also it is possible that different types of maladjustment would show specific patterns of rankings. Thus, rankings might possess differentiating power between various so-called "mental diseases."

Summary and Conclusions

1. The thirty adolescents differed from Beck's adult control group by showing scores which suggest, according to Rorschach theory, more hostility or rebellion, less ego strength, greater effort at adapting to the everyday world, less conformity to the popular thinking of their culture, and less capacity to grasp relations not perceived by others.

2. Both boys and girls preferred (as shown by group ranks) the colored cards to the black-white ones. The one exception was the ranking of card II by the group of girls; however, this card, with its suggestion of blood, might be expected to bring forth an unfavorable response at this particular phase of their physiological development.

3. Of the six subjects who preferred an achromatic card first, five selected card VII. This card is thought to stand for the maternal figure and security. Perhaps this shows some conflict over whether they feel ready for independence and responsibilities.

4. Statistically significant differences as shown by a *t*-test were found:
   a. Between girls and boys on the variability of ranking on card V, the *girls* being more variable.

b. Between the means of Group A and Group B on card VII.
c. Between the means of the preceding groups on card X.

5. Rank order correlations between individual rankings and their group's rankings indicate the possibility of determining normative ranks from which an evaluation of an individual's adjustment might be made.

6. Rank order correlations showed that rankings were not determined by either T/first R, No. of R, or F+ percentage. Perhaps this indicates that subjects respond to the ink blots as a whole and that no single factor determines their response. There was suggestion of a tendency for production to be greater on cards preferred.

7. Pearson *r* between rankings and amount of color used in responding to a chromatic ink blot are low negative correlations. This suggests that the more the specific card was preferred, the more the subject was responding to the card affectively. The correlations between rankings and shadings were low, positive correlations for cards I, V, and VI. Thus, the more a black-white card is preferred, the less dysphoric feeling that card arouses.

8. Further research is needed to determine whether this type of Rorschach card ranking will differentiate clinical groups.

Bibliography

1. Beck, S. J. *Rorschach's test.* Vol. 1. Basic processes. New York: Grune & Stratton, 1944.

2. Beck, S. J. *Rorschach's test.* Vol. 2. A variety of personality pictures. New York: Grune & Stratton, 1945.

3. Beck, S. J. Unpublished norms.

4. Mursell, J. L. *Psychological testing.* New York: Longmans, Green & Company, 1947.

5. Rabin, A. I. and Sanderson, M. H. An experimental inquiry into some Rorschach procedures. *J. clin. Psychol.,* 1947, 3, 216-225.

6. Rorschach, H. *Psychodiagnostics* (Translation). Berne: Verlag Hans Huber, 1942.

7. Wallen, R. The nature of color shock. *J. Abnorm. and Soc. Psychol.,* 43, 346-356.

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INTRODUCTORY COMMENT

It was the suggestion of a sizable group within the membership of the Division on Childhood and Adolescence of the American Psychological Association that a symposium be presented at the 1949 meeting dealing with personality and social development. Consequently, the divisional Program Committee, Gertrude Hildreth serving as Chairman, arranged that the symposium presented herewith be sponsored by the Division.

Naturally, no suggestion was made to the participants regarding content, but each was given the general title, "Psychosocial Aspects of Child Development" to treat as he would.

T. W. Richards

PSYCHOSOCIAL ASPECTS IN CHILD DEVELOPMENT

A symposium presented at the Denver Meeting of the American Psychological Association, September 9, 1949

Chairman

T. W. Richards

Northwestern University

PSYCHOSOCIAL DEVELOPMENT OF PERSONALITY[1]

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When one speaks of the psychosocial development of the child or of the adult, two areas of behavior and theory are brought to mind. The first is that great, amorphous, controversial area known as "personality"; the second is the conflict-ridden area of research and ideology subsumed under "intelligence." Intelligence, so called, shall be considered as one of the manifestations of personality. In so doing many questions are begged, but it seems that justifications for such a grouping can certainly be made.

The purpose of this section of the symposium is to present a plan for ordering data in this whole field of psychosocial development. The material in the field is so heterogeneous and often so loosely defined that an attempt so to order the data is useful and necessary. Both clinically and theoretically, personality data seem to fall into a logical three-level classification.

The first level may be thought of as the most obvious. It might be called the personality layer of "available behavior." The easily observed phenomena of behavior lie there—miscellaneous-appearing, confused, often contradictory. The area is made up of the contents of behavior. There can be placed such phenomena as wishes, ambitions, interests, daydreams, fantasies, sociometric preferences, etc. Evaluations of such available behavior are made in the testing world from such instruments as the TAT, the Picture Frustration Test (both of course may be used to form constructs and/or to describe a deeper layer of behavior); the content of the Rorschach, the Binet or the Wechsler-Bellevue. Such available behavior is also describable in terms of sentence completion tests, play techniques—standardized or otherwise—sociometric charts or interest inventories, as well as anecdotal observations, free observations of behavior and many others. This first level of personality is actually made up of the data out of which "theories" of personality are built.

Second is a level which may be named the "behavior tendency" level. At the present stage of our knowledge it is made up of first order constructs or intervening variables which are not usually rigidly derived or logically related and which tend to be phrased in terms of a more or less oppositional set of adjectives designed to classify or to arrange on a continuum the "available behaviors" which constitute level one. Some personality theorists have made such classifications on a single continuum: e.g., Jung with his introversion-extroversion ordering of behavior; Moloney and many others

[1] Delivered at the Symposium on Psychosocial Aspects of Child Development, at the 57th Convention of the American Psychological Association, Denver, Colorado, September 9, 1949.

with an aggression-passivity continuum. The intellectual-emotional continuum of Rorschach is still another example.

Other theorists and constructors of tests have thought of this second level of personality as a multi-dimensional affair. It would seem that personality typologies such as the viscerotonic, somatotonic, cerebrotonic grouping of Sheldon are efforts to describe and classify available behavior at a behavior tendency level. Other examples are in terms of the use of psychiatric diagnostic categories: e.g., the hysteroid, epileptoid, schizoid, paranoid, etc. The psychoanalytic mode of speaking of personality in terms of levels of fixation is still another example: e.g., the oral or anal or phallic personality type.

There are many schemes for making such estimates of reaction tendency: objective tests such as the Humm-Wadsworth or MMPI exist. Aspects of projective techniques are designed to make similar inferences: e.g., the location-determinant-content-popular-original aspects of the Rorschach; the Picture Frustration Test has been so used; many schemes for the use of Wechsler-Bellevue signs have been advanced. From interviews and observations of behavior, inferences are made as to the character of behavior tendency.

Finally, there seems to be present in the literature still a third level. The constructs making up this third level are at a higher order level of generalization than are the first order constructs in level two. It might tentatively be called the "behavior characteristic" level. It, too, is made up of descriptive terms and so far few investigators have worked from this level to make predictions about available behavior. A behavior characteristic is implied by the use of such terms as: integrated versus unintegrated; or verbally oriented versus performance oriented. Actually a "behavior characteristic" serves as a limiter of the dimensions of behavior. Its constructs are usually thought of as characteristic modes of reaction and limitations within which personality typologies or behavior tendencies occur.

Also, behavior characteristics are apparently learned early, and after his first few years, present relatively stable, unmodifiable modes of reaction throughout the life of the individual. Judgment about them, even as with level two, is made from observations of available behavior or from standardized tests. Inferences about the nature of this third personality level, or behavior characteristic, are made from such data as intelligence test patterns, scores on stress resistance tests, F+ scores on a Rorschach, as well as from tests of "concentration, organization, perseverance, abstraction level," etc. Much of the reasoning in this whole area has been analogical. Tests such as the Wechsler-Bellevue, Binet, Arthur, Vigotsky Goldstein-Scheerer and many others, singly and together, have been used as data for inferring "behavior characteristics."

For the purposes of this paper, then, data and theories of personality are considered as classifiable at three levels: first and most observable is the level of so-called "available behavior"; second, inferential and constructual

in nature is the level of "behavior tendency"; third, also inferential and constructual, is the level of "behavior characteristic."

Next, it is our proposal that available behaviors, behavior tendencies and most probably behavior characteristics are learned phenomena. The laws of learning (insofar as we know and agree upon them) apply to the learning of personality just as fully as they apply to the learning of arithmetic, nonsense syllable lists or bicycle riding. Admittedly, we do not know much about the conditions of learning at any point in the learning sequence as far as personality learning at least is concerned.

Furthermore, with the single exception of psychoanalytic theory, no where in psychological literature does there appear a complete set of hypotheses about how personality is learned. Very legitimate questions have been raised about the adequacy of psychoanalytic theory as a legitimate scientific system (e.g., it is culturally bound, circular, its operations are not verifiable, etc.). Personally, and rather reluctantly, I share the doubts about its systematic and scientific tightness, although in no way would I wish to depreciate the contributions which have been made in the name of psychoanalytic theory and practice.

Eventually, I believe we can arrive at a system of denotation; and an integrated theory of personality which may bring together the dynamic nature of psychoanalytic theory and the testability and systematic rigor being tentatively approached in several of the learning theories. Before this can be done, however, many more data applicable to learning conditions in personality areas must be amassed and integrated.

To denote, predict or even describe behavior, the inadequacy of present applications of learning theory are evident, for instance, in consideration of the experiment of Mary Cover Jones (4) and the child, Peter, who first feared the rabbit and later, through reconditioning, learned to tolerate and even to love it. Peter had originally feared all order of furry objects, frogs, fish and mechanical toys. After prolonged association of a caged rabbit with the pleasant activity of eating, Peter lost his fear of the animal. In testing the degree to which he had lost other fears, it was found that he no longer feared fur coats, cotton or feathers; and took a much less dim view of white rats.

The experiment sounds clearcut and orderly. It fits neatly into most systems of learning theory. But consider the following questions which it leaves unanswered: Under precisely what conditions did exactly what original stimulus produce fear? What were the laws of stimulus gradient to account for the response transferring so far afield, for instance, as to feathers? What was the role, and what was the nature of the secondary reinforcement for this spread of fear (and the later reduction of the fear gradient)? Did the reversal of the stimulus gradient follow the same order as did its original spread, and if not, why not? What was the dynamic of the loss of fear of the rabbit: was it experimental extinction? Was it the learning of incompatible responses (e.g., eating) in the presence of the

rabbit so that the response of fear could not occur? What were the roles of symbolic stimuli and responses (e.g., words)? Was the original fear learned as a consequence of direct trauma or was it "contagion" from the fear of a sib, playmate, nurse, or parent?

An adequate theory of personality learning would answer such questions. No existing system of learning seems able to do so. Present systems are convenient and plausible ways of describing, but they do not tell us why Child A, leaped on for instance by a dog, goes merrily on his way, while Child B develops a long enduring and highly generalized fear, or to what objects and situation Child B is going to generalize this fear.

In terms of our preceding discussion, the behavior of Child B in this situation may be inquired about in some such terms as these:

1. What is the available behavior? *Answer:* It is, at least in the case of Child B, retreat, dependency on adults, crying or other.
2. From what behavior tendency does this available behavior arise? *Answer:* Probably from the "submissive" end of a dominance-submission continuum; or the introversive end of an introvert-extrovert continuum. In any event, it is undoubtedly correlated with other behaviors of the child.
3. What behavior characteristic lies behind this introverted and fearful behavior? *Answer:* The instability end of a stability-instability continuum; or possibly a personality shaped more by verbal than by performance modes of adjustment; or a characteristic of unintegratedness.

The preceding discussion suggests, perhaps, that present learning systems do not adequately account for a situation even so isolated as a child's specific fear. In terms of the broader aspects of child behavior with which we deal, personality systems, be they learning, psychoanalysis, or Gestalt, help us to predict even less adequately about such things as: Why does Johnny have his head set on being a doctor? Why is Mary an over-achiever in school, and an isolate in her play-group? As clinicians and people interested in child development, we often make successful predictions, rearrange environments, etc., satisfactorily. However, we tend to do so in terms of our own private experience and insights rather than in terms of integrated systems of personality theory. Yet many of us have at hand experimental data from which the beginnings of an integrated system of personality learning theory can be developed. For example, a few experiments, or related bodies of data further illustrating the notion of personality levels may be mentioned.

Hagman (3), investigating fears of preschool children, found a correlation of child-mother fears of .667. He felt that children learned to fear certain situations or things by observing their mothers' fears of similar things or situations.

Here are data with reference to the available behavior level. The data are that fears are present. An empirical relatedness is demonstrated (i.e., to mothers' fears). There is a posited set of learning conditions (e.g., the mother was both the stimulus and presumably the reinforcer of the response). A degree of predictability is given. Knowing the child's fears, a low accuracy judgment can be made about mamma and *vice versa*. There is not given, however (and there is no particular reason why Hagman should have produced), any evidence to relate fears to any other aspect of either child or mamma, or of their relationship. We do not know whether the children who patterned strongly after mamma were stable or unstable, introverts or extroverts, performance or verbal skewed or anything else. Before we can do anything very incisive about either these children or their mothers, we need to know much more about the "determiners" or correlates of their fears, the parent-child relationship, the learning conditions applicable to the group which sometimes produced parent-child similarity and sometimes did not.

Child development literature is full of similar studies, of a high degree of excellence in and of themselves, but fractionated and unrelated.

Baldwin (1) supplies a high level piece of research bearing upon the behavior tendency level. Work of the Fels researchers has shown that many areas of child behavior are correlated one with the other (a concept by no means new, of course). Working with data for 67 four-year-olds and their families, Baldwin was able to describe along fairly simple and clearcut dimensions the effects of certain learning conditions supplied by the parents on certain behavior tendencies of the children. Ranging his homes on a democracy continuum, holding the factor of "control" of children constant, he found that democratic handling moves his group of children statistically significantly in the direction of increased activity level, aggressiveness, fearlessness, and planfulness; that such children are likely to be nursery school leaders but (at nearly statistically significant levels) are likely to be more cruel than the average child of the same age, as well as more curious, nonconforming and disobedient. Without straining credulity too heavily, all of these behaviors could be lumped together and placed high on a continuum of agression-passivity.

Conversely homes high in child control, with the factor of democracy held constant, produce children relatively unquarrelsome, negative and disobedient; also they are less aggressive, planful, tenacious and fearless. Such behavior might be subsumed under a tendency placed far towards the passivity end of an aggression-passivity continuum.

From such research, we get broader predictability. Satisfactory delineation of behavior tendency helps us to predict and control a wide series of so-called available behaviors. One piece of available behavior relates to another; higher order generalizations can be rigorously drawn; new deductions and predictions made. Needless to say, prediction even in the Fels study is still at a group rather than an individual level.

Finally, to mention research applicable tentatively to the third or behavior characteristic level, we might mention the broad field of data referring intellectual patterns to social class. In general, as we move up the socio-economic-educational scale, we get differing types of intellectual functioning (as well as different average IQ's). At the so-called lower end, among the *hoi poloi,* performance IQ's tend to be higher than verbal IQ's. At the so-called higher end, verbal IQ's tend to be higher than performance IQ's. There are certain statistical explanations of this; the standardization of the tests is in part responsible; but the conclusion seems unmistakable that, related to social class (learning opportunities seems a more appropriate term) is a whole broad and fundamental method of approaching the world. This method is stable, and seems to have been learned by the pre-school years. It is a behavior characteristic, or second-level generalization. The "highbrow" approaches the world verbally and abstractly; the lowbrow in a performance skewed fashion and relatively concretely. The implications of such a conclusion for educational, economic, vocational and social reform purposes are rather shattering.

More specifically, working with "lowbrows" (boy parolees from the Wayne County Training School, an institution for pre-delinquent, high grade mentally defective children) Bijou (2) found that behavior characteristics, defined on a verbal-performance intelligence continuum, differentiate strikingly between members of an otherwise reasonably homogeneous group. Where vocabulary quotients and Binet IQ's of the parolees were matched, those with the higher performance IQ's (derived from the Pintner Patterson test) succeeded best in the community. There were statistically significant differences. In other words, at a low general intelligence level, if one is a boy paroled from WCTS, one tends to do better in the world the more he approaches it from a performance and reality-skewed angle.

Wellman and McCandless (5) present relevant data for a group of preschool children (enrolled in the University of Iowa demonstration preschools). They found that verbally-skewed youngsters tended to increase their total measured IQ on the next testing round, where relatively performance-skewed ones stayed about the same or dropped. Here again statistical significance was found for the difference between groups.

These two studies specifically, and the broad sample of research on social class and intelligence throw some fascinating if flickering lights on the subject of prediction, which is still broader, namely, prediction from a behavior characteristic level.

The attempt here has been to present a system, illustrated by research examples, for ordering the data amassed in personality research. Such ordering seems imperative for clarity of thought. It suggests the need for much work in the rigorous scientific development of some system or theory of learning (this being potentially the most operational since it offers the greatest possibility for logically integrated research). Personality behavior has been classified at three levels: the empirical level, or *available behavior* level; the first order construct level, or *behavior tendency;* and the second

order construct level, or *behavior characteristic,* which serves to set the limits for development of the first two levels. Many of the data ordinarily subsumed under intelligence, of which the research findings cited are only a few examples, seem most meaningful as limits imposed on personality. They are limits learned early in life. They constitute remarkably stable and permanent dimensions of personality, yet are still culturally determined.

References

1. Baldwin, Alfred. Socialization and one parent-child relationship. *Child Develpm.,* 1948, 19, 128-136.
2. Bijou, Sidney W. Behavior efficiency as a determining factor in the social adjustment of mentally retarded young men. *J. gen. Psychol.,* 1944, 65, 133-45.
3. Hagman, R. R. A study of fears of children of preschool age. *J. exp. Educ.,* 1932, 1, 110-130.
4. Jones, Mary Cover. A laboratory study of fear: The case of Peter. *Ped. Sem.,* 1924, 31, 308-316.
5. Wellman, Beth L. and McCandless, Boyd R. Factors associated with Binet I.Q. changes of preschool children. *Psychol. Monogr.,* 1946, 60, No. 2.

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PSYCHOLOGICAL ECOLOGY AND THE PROBLEM OF PSYCHOSOCIAL DEVELOPMENT

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Psychosocial development occurs as the person behaves in life situations. One method of studying the person-situation-behavior variables that are relevant to psychosocial development is the straightforward one of describing the behavior of persons in naturally occurring situations. Non-experimental investigation of this kind has been productive in astronomy and the earth and biological sciences. The literatures of these sciences record many practical and theoretical achievements that are based upon naturalistic description. In the literature of biology, for example, there are many detailed, concrete descriptions of the conditions of life and the structural and functional adaptations thereto of plants and animals. Descriptive ecology is an important part of biology and an important source of both practical information and scientific knowledge.

Psychology early became experimental; it has accomplished little toward the development of field-study methods. There are few scientific records that tell of a human mother caring for her young. There are few descriptions that give an account of how a particular teacher behaved in a classroom and of how the children reacted. We do not know with scientific accuracy what the members of some one family actually did and said during a meal. We cannot find a detailed history of any child from the time he awoke one morning until he went to sleep that night. Ecology is scarcely a recognized branch of psychology.

The near absence of ecological techniques and data in psychology precludes the investigation of certain problems having an important bearing upon psychosocial development, and because of this deficiency the study of other problems is greatly retarded. It is important, therefore, that the meaning of ecology and its place in psychology be made explicit.

[1] This paper is an expansion of one given at the Denver symposium by one of the authors. The paper has been prepared by the authors named, but it represents the thinking of the whole staff of the Midwest Child Study Project. The staff includes the authors and Phil Schoggen, Jack Nall, Louise Barker, Lorene Wright, Beverly Fox, Lucille Johnson, Maxine Schoggen, Irene Nall and Mariana Remple. This project is being supported by a research grant from the Division of Research Grants and Fellowships of the National Institute of Health, U.S. Public Health Service, and by the University of Kansas. We are greatly indebted to the people of Midwest for their understanding and help.

Psychological Ecology

The Greek root of the word ecology means *home* or *homeland*. For biologists, the study of ecology is concerned with the naturally occurring biological homelands or *habitats* of plants and animals—particularly with the relations between habitat and function, population characteristics, and structural change.

If we take the terms *ecology* and *habitat* into psychology and follow biological usage, the first question is this: What is the homeland, the habitat of behavior? It is right here that a disagreement has already arisen in the use of these terms. One homeland of behavior is the world as it exists for the person and as it affects behavior, the psychological situation or life-space. The other homeland of behavior is the impersonal world which does not affect behavior directly, yet both limits the psychological world and contributes to its content. This other homeland of behavior is the world of physical and geographical conditions, of social groupings and interactions, of economic and political processes, of institutions, of prevailing ideological patterns; it is the *non-psychological milieu* which surrounds the psychological world and from which in part psychological habitats are made.

Lewin (3) has used the term *psychological ecology* to refer to the relations between these two realms, the psychological and the non-psychological worlds. In a study of food habits, for example, he points out how the psychological determiners of this behavior are directly influenced by economic, agricultural, geographic and other non-psychological conditions. The problem of establishing the connections between non-psychological facts and psychological situations or habitats Lewin calls the ecological problem.

Brunswick (1) uses the term ecology to denote the body of problems concerned with the description of the psychological world and its relation to behavior. Ecological variables for Brunswick are the *perceived* size and distance of objects, not their *measured* size and distance; or the *judged* intelligence and political conservatism of persons, not their *measured* intelligence and conservatism.

Both Lewin and Brunswick agree in using ecology and habitat to refer to *naturally occurring*, non-experimental situations. There are good reasons for continuing this usage and for giving the term *ecology* in psychology a very general referent, namely: the study of behavior in naturally occurring situations. This marks off psychological ecology from experimental psychology, with the latter defined as the study of behavior in artificially arranged situations, whether these include brass instruments or devices like projective tests and questionnaires.

Following Brunswick and Lewin further, we can distinguish two ecological problems and two corresponding terms to identify them.

First, there is the problem of the *non-psychological milieu*, of the material-cultural world in which the person is immersed, and of the way it is transformed into a psychological world or habitat.

There is the further problem of the *psychological habitat,* of the naturally occurring psychological world, one that depends partly upon the non-psychological milieu and partly upon the motives and abilities of the person. The requirement here is to describe existing habitats and to show how they are related to behavior.

Both of these problems are of fundamental significance for psychosocial development.

Psychological Habitat

We have good techniques for describing and measuring behavior, but inferior means of describing and measuring psychological habitat. One of the first needs here has been the need for more adequate concepts. In the absence of such concepts we resort to short-hand ways of denoting different habitats, generally in non-psychological terms, as when we point to the "situation" of the "only child," the "lower class child," the "Negro child," the "urban child," the "institutionalized child." It is true that biologists, too, use non-biological terms to designate animal and plant habitats, as when they refer to the Alpine, Hudson, and Sonoron zones. Biologists, however, know a great deal about the biological complexes, the manifolds of temperature, precipitation, soil conditions, and the like, which these terms designate. But psychologists often have only the vaguest understanding of the psychological conditions named by their habitat terms.

When the needed information becomes available and we have psychological habitat maps, as we now have biological habitat maps, a number of approaches to the study of psychosocial development will become easier. Important possibilities here include the following.

1) *Comparative studies of habitat and behavior at different times and places.* One cannot investigate the changes which have occurred during the last century in the rearing and behavior of children. No scientific records have been kept. The best one can do is to call upon the writings of novelists, diarists, letter writers and news reporters, and from them reconstruct in some degree the conditions of the past. This is almost as true for intercultural and subcultural research.[2] There are few descriptions of the conditions of life and behavior of particular individuals in different cultures which are suitable for psychological analysis. It is virtually impossible, moreover, for an investigator to cover the ground of available studies from the original data collection through the stages of analysis and interpretation.

2) *Studies of acculturation and personality formation.* Acculturation occurs and personality is formed through the interaction of psychological habitat and behavior as they occur in life situations. The tasks of the stu-

[2] The work of sociologists and ethnologists deals largely with the generalized habitats and behavior of the people of a culture or subculture. We are concerned, here, with the habitats and behavior of particular individuals.

dent of acculturation and personality are to formulate the general laws by which psychological habitat is related to acculturation and personality formation, and also to discover and describe existing psychological habitats. The whole problem is one that cannot be met in laboratories or clinics; it requires first-hand descriptions of behavior and conditions as they occur in real life. At the present time we have little scientific information on this matter. We know much about what children do in the laboratory, under experimentally induced frustration and conflict, for example; and we know much about what children do in the situations created by psychological tests. But we know little about the content, order, and patterning of the situations which actually exist for children in their daily lives; nor do we know how children react to these situations. We know a great deal about how children are *able* to behave, but we know little about how they *do* behave because we have not studied what they do in their psychological habitats.

3) *Theoretical studies.* The lack of naturalistic records of behavior has retarded systematic, theoretical studies. It is well known that important theoretical achievements have been made in such non-experimental sciences as astronomy, geology, and meteorology. It would be unfortunate if psychology should neglect at this stage in its development the naturalistic approach to problems of explanation, for psychology is at present much better equipped than formerly to handle naturalistic data on an adequate conceptual level. The central task of theoretical psychology is to formulate the general laws governing the simultaneous and sequential interdependencies of behavior and situation. Methods of recording the simultaneous and successive behavior manifolds in naturally occurring situations are essential to progress in this difficult task. For one thing, it is impossible to create experimentally some conditions that occur in life situations. No laboratory can duplicate the frequency of repetition, duration, intensity or complexity of psychological situations and behavior that are common outside the laboratory. Further, a great variety of psychological habitats occur in every community, so that it is possible to test hypotheses by comparing the behavior of persons in different habitats. The proposed procedures are similar to well established public health methods in which health and growth are studied in relation to naturally occurring nutritional and sanitary conditions.

Non-Psychological Milieu

We turn to the other main problem of psychological ecology, the relation between psychological habitat and the non-psychological milieu. How and in what degree does the material-cultural world affect psychological habitat?

Through studies in Midwest, U. S. A., we have found that this com-

munity, like every other, provides for its children a limited number of psychological habitats, just as a geographical area provides a limited number of plant and animal habitats. How does this come about? In a considerable degree through manipulation of the non-psychological milieu. It is common to say that the world of the child, his habitat, arises through learning. Our studies already suggest, however, that habitats are created or destroyed in a much more direct and immediate way, i.e., through manipulation of the non-psychological milieu. For example, the children of Midwest have few regularly recurring habitats which mean to them, "this is a time and place to have a good time with grown-ups' help." There are few adult-created recreational groups—no hobby clubs, no dancing classes, no purely social organizations for children or adolescents. Adult-sponsored children's activities are chiefly cultural and educational, with sheer recreation as an adjunct, e.g., the programs of the 4-H Club, the Sunday schools, and the Scouts. The scarcity of purely social-recreational habitats for children in Midwest is not a consequence of learning by the children that they are "bad" and therefore to be avoided; this is, in fact, not true. Their scarcity is an outcome of the fact that the community does not provide the milieu so that many regularly recurring habitats of this kind can exist for its children. The town uses its resources for the psychosocial development of children more in other ways.

Methods of Psychological Ecology

In the space available, it is possible to consider briefly only two methodological problems of psychological ecology, both of them concerned with behavior and psychological habitat. We refer to (1) methods of sampling, and (2) methods of recording.[3]

Sampling Behavior and Psychological Habitat. The primary data of a study in psychological ecology are behavior-habitat units. One of the first findings of the Midwest research was that great numbers of such units occur in even a small community. Midwest has a total population of 700, of which 109 are children below the age of 12 years. Our records indicate that, considering only the children, there occur in Midwest 75,000 to 100,000 differentiable behavior-habitat units, or *episodes,* each day. It is clear that means have to be found for sampling so great a mass of material.

Two kinds of sampling guides are available. First, there are stable, non-psychological characteristics of individuals that are known to be correlated with behavior. These include sex, age and social class. Factors associated

[3] Other problems of method that cannot be considered here are 1) methods of identifying and describing the non-psychological milieu, 2) methods of defining and identifying valid units of behavior and habitat, 3) methods of describing behavior and habitat in valid conceptual terms. These problems will be considered in subsequent papers.

with variations in these characteristics influence behavior in more or less characteristic ways. Secondly, there are stable, non-psychological situations of the community which are known to be correlated with behavior, e.g., the situations provided by the Sunday school, the day school, a basketball game, the drug store. Such community situations coerce the children who enter them to behave in relatively homogeneous ways regardless of the individual characteristics of the children. The behavior of children in Sunday school will be quite different from the behavior of the same children in day school, in the drug store, or at the basketball game. Every community provides a number of such situations; we may call these the *behavior settings* of the community.

The student of behavioral ecology is in a position to make a two-way stratified sampling of behavior-habitat units if he has available a census of the individuals of the community with their age, sex, and social class, and a map of the behavior settings of the community. It is necessary to consider further here the variables of age, sex and social class; however, behavior settings require additional discussion.

The behavior settings of a community form a link between the non-psychological milieu of a child and his psychological habitat. Every behavior setting contains non-psychological forces which compel the child to develop a psychological habitat that is in some degree appropriate to or isomorphic with it. A behavior setting may be defined as a physical or social part of the non-psychological world that is generally perceived as appropriate for particular kinds of behavior. The behavior settings of a community are the limited number of physical-social regions which are selected from the infinite number that could be discriminated and which are perceived as possessing appropriateness as centers for particular kinds of behavior.

A behavior setting is denoted both by its objective physical-social characteristics and by its perceived behavioral possibilities. Thus, the behavior setting, "chair," has both certain physical properties (including shape and size) and perceived behavior appropriateness (a place to sit). A person may in this case engage in the appropriate behavior in the absence of a chair. He may sit on a stone; but this does not make the stone a "chair" for the person, if his perceptions are normal. An object with the physical properties of a chair which, as in some oriental cultures, is not perceived as being appropriate for the behavior of sitting is not a "chair."

Similarly, a social behavior setting requires both a certain social arrangement and a particular perception of its behavior appropriateness. Thus, the behavior setting, "birthday party," must include both an objective social arrangement (invitations, guests, refreshments) and characteristics of the situation which are perceived as appropriate for "party" behavior (gifts,

congratulations, games). Either, alone, does not make a birthday party.

The behavior settings of a community are partly created by the people, as in the instances of streets, churches, and policemen. In part, too, they are selected from the infinite number of conditions and states of affairs, such as bathing beaches, quarries, and social classes, that make up nature and society. The behavior setting has the same place in the psychology of action as a color chart in the psychology of perception. To be "red" on the color chart an area must have a certain physical wave length of reflected light *plus* the perception of it by most people as "red." If either of these dimensions of the area should change, the color would not be "red."

Some physically discriminable parts of the environment are not behavior settings because they are not generally perceived as being appropriate for behavior of any kind. Thus, an abandoned railroad grade near Midwest is not a behavior setting. It is not seen as appropriate for any activity: not for gardening or farming (poor soil and topography); not for sliding (banks too short); not for hiking (it goes nowhere); not for picnicking (no shade).

Again, the behavior setting stands midway between the non-psychological milieu and the psychological habitat. It is a part of the non-psychological world that is generally perceived as having some particular behavior appropriateness. The behavior setting is not a part of the non-psychological milieu as such, nor a part of the milieu which has been transformed into psychological habitat for a particular individual; it is a part of the milieu as it is generally perceived.[4]

In practice, behavior settings can be discovered by listing the distinguishable physical and social features of a community, and by asking the inhabitants, "What is the appropriate thing to do here?" This question may be asked directly of informants or it may be asked and answered implicitly by observing the characteristic behavior of people in different physical and social regions of the community.

Examples of behavior settings for the children of Midwest are given below. They have been identified upon the basis of information secured from informants, reports in the Midwest Weekly, and field observations. The breadth of the categories has been determined by the requirements of our research; for some problems, considerably more detail would be required. The psychosocial development of the children of Midwest takes place within such settings as these. The complete inventory of behavior settings serves as a guide for sampling the psychological habitat and behavior that occur in the community.

[4] Sociologists and ethnologists are concerned with this problem on a culture-wide basis.

Examples of Child Behavior Settings in Midwest

Physical-Social Milieu	*Behavior Appropriateness for Grade-School Child*
Own home, 6:00-8:00 a.m.; parents call, child undressed, clothes available, bathroom facilities available.	"Getting up and getting dressed."
Own home, indoors; no specific coercions operating.	Wide variety of quiet, non-destructive "proper" activities (playing, reading, listening to radio, etc.).
School classroom, "study period."	Sitting, quiet shifting of position, writing, reading to self, thinking, day dreaming, quiet talking with neighbors about lessons, walking about with permission.
School halls and cloakrooms, before school and between classes.	Restrained talking, laughing, joking; walking about freely; eating candy.
Drug store.	Purchasing and eating candy, soft drinks, ice cream; purchasing and/or reading comic magazines; meeting and conversing with friends; mild hilarity.
Sunday school, opening exercises.	Sitting still, listening, group singing.
Women's Club.	Helping mother serve, quiet sitting and listening, performing (speaking piece, singing).
Streets (except those around courthouse square).	Walking, running, riding horse or bicycle, playing ball.
Hardware store.	Examining and buying goods for sale, securing information about the operation of tools and machines, watching mechanics, playing in small groups among refrigerators, etc.
Movie.	Eating popcorn, meeting friends, watching show.
Tavern.	Looking in.

Recording Psychological Habitat and Behavior. Scientific descriptions by psychologists of human behavior in naturally occurring situations have used four general methods, which are represented by 1) *specimen records,* sometimes called "diary records," "narrative accounts" or "anecdotal records"; 2) *time sample records;* 3) *surveys and tabulations;* 4) *case studies and biographies.* Each method has advantages for ecological studies. It is not possible to consider all of the methods here. We should like, though, to indicate the place of specimen records in ecological research.

In their original form, specimen records were simple narrative descriptions of behavior. Examples are given below:

> *Preyer* (4): On the 26th day... He started suddenly when a dish that he could not see was noisily covered near him. He is frightened, then, already at unexpected loud noises, as adults are. On the thirtieth day this fright was still more strongly manifested. I was standing before the child as he lay quiet, and being called, I said aloud, "Ja." Directly the child threw both arms high up quickly and made a convulsive start with the upper part of his body, while at the same time his expression, which had been one of contentment, became very serious.

> *Isaacs* (2): Phineas (3:10) went to look at his garden and found the mauve crocus which he had planted last week; he showed it to Miss C. saying, "It's come out—that's because I made it some pudding." He wanted to plant more bulbs and went to the rubbish heap to look for more. There were two crocus open and he began to dig them up. The stems broke and they came up without the bulbs. Phineas said, "Are they broken?" and Lena told him, "Yes because there aren't any bulbs." ... Later Phineas "dug" one up complete with bulb and shouted, "There's the root ... That one will grow!" He planted it in his own plot.

Records of this kind have been severely criticized, and it is partly because of them that the term "anecdotal" has become one of opprobrium in psychology. The criticisms which have been mentioned most often are 1) biased selection of incidents, 2) unreliable reporting, 3) unwarranted interpretation, and 4) difficult recording and analysis. These criticisms are undoubtedly justified in many cases in which primitive specimen records have been used. However, the reading of such anecdotes, even in their early inadequate form, reveals advantages which have not often been pointed out. They give a multi-variable picture of the molar and molecular aspects of behavior and situation. They record in some measure the continuities of behavior. They present unanalyzed specimens of behavior and psychological situation. Other sciences have found it profitable to collect relatively intact, unanalyzed specimens of their phenomena for study, as in herbia, and in anatomical and geological museums. Psychology has no such collections of its raw material. If we want undissected records of how and under what conditions people actually behave we have to go to novelists, diarists and newsreporters.

There is some evidence of a new interest in the possiblities of such naturalistic records of behavior which will meet present-day requirements of reliability and validity. Despite the discouraging shortcomings of early anecdotal reports, there is reason to believe that such descriptive accounts can be greatly improved. Here is an excerpt from a record that we have made. It is taken from a continuous narrative record of a child's behavior from the time he awoke in the morning until he went to sleep at night. It extends from 7:20 a.m. till 9:15 p.m.

Roy is a seven-year-old boy. He lives in Midwest with his mother and father and two sisters (15 years and 13 years) and brother (12 years). The following sequence of behavior occurred in May, 1949. It took place after Roy had finished breakfast and before he left for school. Roy was dressing in his bedroom, which also serves as a hallway between the kitchen and the living room. He stood in his shorts beside his bed, where lay his clean jeans.

8:33 Roy took a pair of neatly pressed jeans off the bed and viewed them soberly.

He sat on the bed as he put his legs into the legs of the jeans. He was puffing with the effort of dressing, and probably because he had a cold, too.

One of the snaps on the fly wouldn't snap, though he tried hard, frowning impatiently.

He said, "Ounnnn," in protest and looked at me seriously for me to share this reaction to difficulty.

I said, "It's hard." He said, "Urrrr," softly in agreement.

With another stronger effort he succeeded in fastening the snap.

He showed no sign of satisfaction, however, as his attention quickly and eagerly turned to a belt on the bed. The belt seemed to be the important thing, but the jeans had had to go on first.

He straightened the belt, but was not ready to put it on.

8:34 He announced, "I'm going to take my belt," as though this were something very important.

Then he put on the belt. This completed the dressing.

Roy said proudly and with definiteness, "I'm going to take my gun, too."

He looked at me and said, "The gun is still under my pillow."

He then looked toward his pillow.

> His tones and glance suggested that there was prestige about sleeping with a gun under the pillow. However, there was no arrogance, just happiness.

He reached under the pillow.

To his evident surprise, he brought out a flashlight.

He said, "Ahhh, here's the flashlight. I didn't put it up yet." He laughed as though he had been quite inefficient, that he should have done that some time before.

He took the flashlight, and laid it carefully on a ledge of the nearby cupboard.

> *8:35* Lola, his fifteen-year-old sister, called pleasantly, but with responsibility, "Are you about ready to go to school, honey?"

As Lola came in, Roy got his gun and holster from under the pillow.

Lola went directly to Roy and turned his collar down.

She said, asserting her responsibility, but in a friendly voice, "Collars look better when they are turned down."

She kneeled and turned up Roy's jean legs so they wouldn't be too long.

She was quite motherly about this. Roy was absorbed with his gun and holster, paying little attention to his sister.

Then Lola noticed Roy's holster and gun and said, "You shouldn't wear that holster and the gun," in an authoritative tone.

He ignored her remark and quietly persisted in preparing to wear the gun. He was getting the holster placed just right on the belt.

Then he took off a chain that was on the holster.

He put the chain on the bed.

His sister said, "You can't wear it." Then as a more forceful approach, "Mother doesn't want you to wear it." She said this firmly and with agitation.

Roy showed no intention of heeding her. He adjusted the holster even more; then put the belt around him and began to fasten it.

8:36 His sister exclaimed quite loudly as she saw him actually put the belt on, "Roy, you take it off!"

Roy stood resolute and very quiet.

> This did not appear to be an ominous quietness perhaps to be followed by tears or tantrum. I think Roy had decided he didn't necessarily win by argument or pleading a cause, but that it is more prudent to act quietly, avoiding interference. It was a technique, it seemed, for coping with a sister who would try to prevent him from doing what he wanted to do. Lola did not show hostility during the argument. She meant to be firm because she was responsible for his dressing, but she did not show much agitation until she saw him actually putting the belt on.

She seemed finally to be almost ready to concede the point, and said, "Do you play guns at recess?"

He said, "Yes," emphatically and also defensively, looking straight ahead.

Vernon, (the twelve-year-old brother) who came in to hear the argument, said, knowingly and in firm contradiction, "Oh, no you don't." Lola said uncertainly and still trying to reckon with Roy, "Well, will it be warm enough today?"

I took it the argument was over and Roy had won.

The sister said, "I'll wash you." She started for the bathroom, expecting Roy to follow.

Records such as this, presenting as they do relatively complete accounts of behavior and psychological habitat as they naturally occur appear to be of great potential value for studies of psychosocial development. Their validity, reliability and practicability remain to be determined, although there is little question that they are adequate for many problems.

Through our work in making specimen records, we have learned a number of things which seem to be of methodological significance.

1. At the present time specimen records must be made by watching and verbally describing the behavior of the subject. Sound moving pictures or television may become technically feasible in the future, although the difficulties appear to be very great.

2. Records covering relatively long sequences of behavior are advantageous. In the first place, the danger of biased selection of behavior incidents is reduced as the length of the sequence is increased. We find that a record covering the behavior of a child through an entire day contains 750 to 1000 behavior-habitat units or episodes. A long rather than a short sequence of behavior is, therefore, roughly equivalent to a large rather than a small population sample. In the second place, the danger of false interpretation of the meaning of an episode of behavior is reduced when it occurs in a wide context. In the third place, behavior is extended in time, and its sequential arrangements are as significant as its other features; continuity as an aspect of behavior is lost if single episodes, or short sequences are recorded.

3. Specimen records should include descriptions of both the directly perceived, manifest behavior—the vocalizations, the limb movements, the locomotions—and the observer's immediate inferences of the motivations and feelings of the subject. One who is concerned about the objectivity of such records must face the fact that he has to deal with the direction, the goals and the meaning of behavior when he studies psychosocial development, and that these can never be perceived directly. By recording long sequences of both directly observed and inferred behavior the best basis for constructing a final "true" record is laid. Observation is always selective, but it is more or less so, and it can be guided by broad or narrow purposes. One aim in training observers to make specimen records is to reduce the bias and increase the breadth of the report.

4. A specimen record should describe the situation in which the behavior occurs as well as the behavior itself. Behavior divorced from its psychological context is largely meaningless, and much of the value of specimen records lies in the possibility of studying the relations between situation and behavior.

5. In making specimen records the influence of the observer must be kept minimal and constant. The observer is almost always a part of the subject's psychological situation and hence influences his behavior in some degree. This is an inevitable limitation of most naturalistic observations. An important part of the training of observers lies in techniques of minimizing and holding constant the involvement of the observer in the subject's behavior.

6. The optimal length of an observation period is small. The alertness required to perceive and remember the multitude of simultaneous and sequential occurrences is fatiguing. Notes taken on the spot help, and they are a part of our procedure. We have found, however, that even when extensive notes are taken, an observer's efficiency rapidly declines after 30 minutes of observation. This means that long, continuous, specimen records require a team of observers. For a full-day record at least six observers are needed, with eight or nine desirable.

7. Observations should be recorded by dictation immediately after they have been made. It is probable that when the intention is to make ratings and general summaries of behavior and situation, a period of time to provide for perspective and insight is advantageous. But when emphasis is placed upon the concrete details, as in specimen records, immediate recording is essential.

8. We have found it valuable to provide an interrogator who listens to the original dictation of observations, and questions the observer on unclear points after he has finished. This allows for both spontaneity in the original report and for its subsequent correction and completion. It usually requires at least an hour to record a half-hour observation; frequently a longer time. With a team of eight or nine observers a schedule can be arranged whereby each observer serves also as interrogator. Interrogation benefits both the observer's record and the interrogator's subsequent observations.

9. The typescript of the original report and interrogations can conveniently be stapled in sequence to wide continuous strips of paper for editing by the original observer. The editing includes correcting, simplifying and welding the report and the interrogation into a final sequential description. In our work, the observer is always interrogated further in this stage of the procedure.

This process yields a record of the sort exemplified by the excerpt given above. It provides a specimen of raw behavior data which can be used for a number of purposes and which appears to be of particular value for studies of psychosocial development. The specific uses depend upon the methods which can be devised for analyzing and conceptualizing the descriptive content of the records. This problem, together with the problems of reliability and validity, will be considered in forthcoming publications.

Psychological ecology can make important contributions to an understanding of psychosocial development. These contributions await the further development of methods of studying behavior in naturally occurring situations.

References

1. Brunswick, Egon. *Systematic and representative design of psychological experiments.* Berkeley: University of California Press, 1947.
2. Isaacs, Susan. *Intellectual growth in young children.* New York: Harcourt Brace, 1930.
3. Lewin, Kurt. Constructs in psychology and psychological ecology. *Univ. Ia. Stud. Child Welf.*, 1944, 20, 3-29.
4. Preyer, Wilhelm. *The mind of the child, Part I, the senses and the will.* New York: Appleton, 1888.

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A COMMENTARY UPON SOME RECENT CHANGES IN CHILD REARING PRACTICES[1]

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As one surveys the topics which we (as professional groups) set for ourselves at meetings such as this one—and as one surveys the articles we write for each other to read—one common feature in our thinking becomes conspicuous. There appears to exist a strong desire to bring together fields of inquiry which, in the past, have largely been independent of one another. Within the field of psychology generally, and even more strikingly within the area of child development, one can note continuous efforts to break down existing boundaries. In the past we were taught to think, for instance, of the social aspects of child development as an area of study existing independently, restricted to circumscribed content and pursued by specified methods appropriate to the task. Other aspects of child development, for instance intellectual development, personality development, etc., were each treated as distinct and separate fields of study. While attempts were often made to *correlate* the phenomena which characterize each of these fields, we did not go beyond this and were content to establish the fact that a parallel can be drawn between different areas of development.

At present our emphasis is different. We stress the importance of understanding the structural and dynamic interdependence among the various developmental part-processes. We assume that physical maturation, intellectual opportunities and barriers as they exist for the child, and broader social and cultural factors all to some degree determine each other, so that no single facet of development can be described or comprehended in isolation from the rest.

If we are in earnest about achieving such an integrated approach, it will be necessary to relinquish many of the concepts and methods to which we are accustomed. The term "Psychosocial development" which occurs in the title of this symposium represents an attempt to break down the boundary between psychological and social aspects of development. Yet, as ordinarily used, this term does not suffice; it seeks to correlate phenomena rather than to describe them as one.

For the purposes of this discussion I propose to go one step further, and discuss some recent changes in child rearing practices in their larger social and cultural context. The theoretical point of view referred to above views each area of growth and development as no more than a single facet, among

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many, of one and the same process, as though,—when we study language development, or motor development, or personality formation,—we were each peering through a different window, trying to discover what goes on within one and the same building. On the basis of such a view the manner in which children are raised, and the attitudes to which they are exposed, are part and parcel of child development itself,—not merely one of the factors which will influence it.

In this country and in modified forms in other countries we have, within a rather short period of time, witnessed a remarkable change in cultural attitudes toward specific child-rearing practices. Now as formerly it is true that the United States (more than other parts of Western civilization) is characterized by the fact that children, their health and education, possess a very high cultural value. In all likelihood this has something to do with the fact that to Americans the future is more important than past or present. Historically the United States has stood for the realization of concrete, workable, realistic fulfillment,—if not here and now, then in the foreseeable future—whereas many other cultures seem to stand primarily for a noble tradition or for more abstract ideals. The importance of children to our society has not markedly changed, but the ways in which society deals with children, the way in which parents, teachers, physicians and others behave toward children, has changed a great deal.

Ten years ago and less, authoritative public opinion subscribed to sentiments and rules which may be characterized as follows: Bodily and mental health is based on an orderly, strictly scheduled existence from early childhood onwards. Prescribed formulae are superior to breast feeding, chiefly because the ingredients are known and nutrition becomes, therefore, a controlled process. When babies or children cry without recognized legitimate cause it is best to let them cry it out. It is the responsibility of adults to teach children what is "right" and what is "wrong" in regard to meal times, sleeping hours, play interests and most other activities. The standards for "rightness" in such matters were derived from a combination of adult patterns of living and scientifically established facts about the physical growth of children. At the time, this seemed a highly rational approach. It goes with the concept of a stable, orderly and ultimately predictable universe which characterized the early decades of the 20th century. From the vantage point of the present, it is difficult to recapture the feelings and expectations on which such convictions about child-rearing practices were based. The extraordinary advances made in the natural sciences and their application to almost all facets of living,—from the building of bridges to airplane travel, and from routine innoculations to pre-cooked baby cereals, —provided for dominant groups in our culture a sense of certainty and power. It was somehow felt that—in principle at least—the external forces of nature had been overcome. The future was ours to master. It is no wonder that such a background of attitudes would lead us to expect that bigger and better children could be produced—much like automobiles or washing

machines—through specific, rather mechanical, prescribed procedures. It is well to remember that mothers who forced exactly six ounces of formula down a baby's throat exactly every four hours, nursery school teachers who handed out gold stars to the child who didn't raise his voice nor fight for a toy, and teachers who taught arithmetic by drill and drill alone performed these acts with as much or as little love and devotion for their children as is felt by any mother who feeds her baby on self-demand, and by any teacher teaching self-expression through rhythm games. Mothers dealing with their children flexibly and indulgently today, as well as the mothers who raised their children rigidly and sternly ten years ago, are and were supported by a strong sense of doing what is best for the child in accordance with expert opinion.

In the course of recent years we have lost the naive sense of mastery in regard to the world in which we live. Not only scientists but people in general have ceased to believe that technological advances will solve the problems of human existence. Quite the reverse, we are afraid of the consequences of the split atom and of other devices which release and manipulate natural forces. At the same time a generalized feeling of uncertainty emerged: even on the surface we no longer possess a stable value system. Such changes in cultural atmosphere have, of course, recurred many times in history. They characterize post-war and between-war periods, and are often described as periods of decadence or disintegration.

In one respect, however, the cultural milieu which forms the matrix in which our children presently grow and develop differs from previous times of social crisis. Scientists and everyone else now tend to regard human nature itself as the main source of threat to future security and well being. The fear of the gods, of enemies and of natural forces has been replaced by the fear of the unconscious, or of whatever it is that determines human actions. Psychoanalysis has done more than any other theory to illuminate the seemingly irrational aspects of human behavior. Occasionally it is claimed that the findings of psychoanalysis have helped to undermine the stability of our attitudes and values, and have therefore partially caused the current confusion. It is our impression that the reverse is true. In other words, the writer believes that the enormous impact which psychoanalysis has had upon popular thought, its influence on medicine, education, literature and even the moving picture, are a consequense of the loss of a stable value system rather than the other way around.[2]

We have referred to the rigid scheduling, the careful dosing of manifest

[2] Neither of the alternative views stated in the text fully reflects the intended meaning. The effect of psychoanalysis upon popular thought and practice, and its relationship to the cultural state, must be reciprocal. The formulation of psychoanalytic theory required cultural forces which demanded it; the initial resistance against analytic findings and the subsequent popularization of these findings were largely determined culturally; yet during the process the culture changed, partially by virtue of having absorbed new "facts" and new ideas from psychodynamics; the whole process being intricate and dialectic in nature.

affection and the orgies of formula prescription which constituted authoritative opinion on child rearing practices until recently. The totality of these attitudes and practices we have regarded as of a piece with a social-cultural milieu the stability and cohesiveness of which rested on a sense of technical mastery. What of the present-day philosophy of child rearing? To select a few representative items: It is now thought that it is up to us as adults to meet the needs of the younger child, rather than to expect early adaptation from him. To wit, self-demand schedules and all that goes with them. Among the needs of the young child we recognize the need for affection and for an intimate relationship with the mother as of very great importance, tending to evaluate it as more crucial than the need for good physical care. We prize self-expression, sincerity of feeling and spontaneous interest above good manners, self-restraint or intellectual accomplishment. So far so good; each culture has the right and the obligation to determine the educational goals for which to strive, and the above goals appear to adequately represent what we as a group want our children to be.

Let us look, however, at the means we adopt in trying to reach these new goals. Not so much the child-rearing authorities themselves as their interpreters (in the press, the Well Baby Clinics, the case work agencies, the Public Health Departments, etc.) have created a philosophy which by and large makes it seem as though contentment and even normal development for the child can be attained only at the cost of great self-denial on the part of the parents. The mother, especially, must subordinate her need for sleep, for recreation, for getting the housework done or for pursuing non-domestic interests at all times. Moreover, she is expected to do so with a sense of deep satisfaction and happiness. If, for a moment, we disregard all that has been learned about personality development (which led to these new methods) and consider only the vague ideological orientation of many parents and others who apply these new principles—one outstanding feature of the spectacle is that the adults are uncomfortable in many ways. Rooming-in requires the mother to take active charge of the baby at a time when previously she would have rested and been waited upon hand and foot. Self-demand, especially when the baby is breast fed or when it is believed that close contact between mother and child at feeding time is important, mean that all other activities must be adapted to the child's rhythm and makes it almost impossible to get away from home. Giving the child free scope to explore the world means endless patience and labor in cleaning up messes and in countless other ways.

If one wishes to establish a relationship between broad cultural trends and child-rearing practices, observations like those above, however correct, would be of very limited significance if they related to this one area alone. Yet even a most superficial survey of accepted attitudes and practices in altogether different areas suggests a similar trend toward making things tough for adults. For instance: after operations people used to have weeks of bed rest—currently they are made to walk about during the first few

days. The usual length of hospitalization for childbirth has dropped from ten days to six days. An infection, which in the old days would have been good for several weeks now, with the use of penicillin and other drugs, will be cleared up in a matter of days. If one breaks a leg plastic braces make it possible to walk again within a few days. If a person be too tired to work, benzedrine will fix him up almost at once. Obviously penicillin, plastic braces and the rest represent invaluable advances and constitute essential progress in human knowledge. Similarly, our new and more complete understanding of the needs of children is valuable and has become indispensable knowledge. It remains true, however, that, in our culture, it has become exceedingly difficult for adults to find legitimate channels of indulgence. Where passive needs are concerned even minimal satisfaction is difficult to attain without cultural criticism.

Such a state of affairs is of course multi-determined. If our previous speculation is correct, however, i.e. if it is true that we now tend to ascribe the responsibility for wars and other disturbing events to the "human element" rather than to outside forces, this fact may be considered as one among many which have brought on the present attitude of severity toward the needs of adults. Roughly stated our thought is that if we, collectively, assume responsibility for having created our social existence, we automatically assume moral responsibility and hence guilt for the state of affairs in which we find ourselves. In addition it follows that hopes for a better world rest with our ability to make our children more rational, more competent and more capable of maintaining an orderly existence than we have been.

Such an attitude is reasonable enough, except perhaps for the element of guilt. It is precisely this element which is reflected in some of our child-rearing practices. In the case of individuals we know that feelings of guilt are likely to lead to self-defeating action, designed more to appease the individual's anxiety than to remedy the situation which caused the guilt feeling. It is barely possible that collectively, as a culture, we are doing the same thing. It is as though our recognition of the fact that the better we learn to control events the greater our responsibility for these events implied an apologetic state of mind towards our children. As though we not only regretted that we have not done better by them, but also felt that we must "make up to them," so to speak by extra indulgence and also by punishing ourselves.

It is not suggested that individual parents, or any other persons who deal with children, are apt to consciously and clearly experience the pattern of thought suggested above. Yet, for the moment, we may assume that some such undercurrent exists in our society and motivates and/or activates some of our behavior towards children. What would it mean for the development of the children who grow up amidst such attitudes?

A real discussion of this point would require more time than is available, but the following may suggest the trend of our speculation. It is generally

true that as we deal with children, individually and collectively, we communicate to them not only our conscious intention, but also our feelings and attitudes (conscious or unconscious) which accompany these intentions. It is reasonable to assume that if our behavior towards children is in part motivated by anxiety and guilt—as has been suggested in the body of this paper—children will absorb the fact that such attitudes are maintained toward them. This in turn can be expected to affect their developing concept of the self and of the world about. As is often the case, psychopathological material may provide clues as to the meaning of behavior observations that are made with normal children. Available clinical observations can be interpreted in such a way, it is believed, as to show that in indirect ways children acquire a sense that something is owed them. Moreover, and related to this, the awareness of the adult's insecurity, anxiousness and guilt would seem to operate as a barrier towards developing the trust and confidence in the strength and the superior judgment of adults which children require if they themselves are to feel secure and confident.

In this discussion we have not attempted to evaluate or criticize the recent ideology concerning child care. Nor have we wished to assess the merits of any of the specific methods or practices which were referred to and which resulted from a new philosophy concerning children. In fact, it may not be amiss to mention that in large measure we consider the new pediatric and educational practices as the practical application of valid and useful insights into the nature of personality development.

Rather, we wish to call to your attention the manner in which many of the facts provided by psychoanalysis, child psychology, etc. have been interpreted and applied. It is thought that the application of our new insights has often been made in such a way as to make many of the recommended child-rearing practices the vehicle of our group anxieties and collective guilt. We do not regard this as a logical necessity. Instead we should like to consider it as a comprehensible social-psychological phenomenon which may perhaps be modified and minimized through conscious recognition. Cultural emphasis on the psychological implications of child-rearing practices is likely to continue, and it is desirable that it should. However, a modification in some of our accompanying attitudes is also thought desirable. Increasing awareness of the less rational elements in our behavior—of unconscious motivations and of the intrinsic connection between feelings, beliefs and actions—is useful to the extent to which it enables us to better control these elements and to master ourselves as we have mastered the physical world. It would be both ironic and tragic if, in the very act of removing some of the frustrations and limitations to optimal psychic development, we ran counter to the very nature of our understanding about the emotional needs of children by unnecessarily burdening them with our historically and socially understandable terrors and uncertainties.

Manuscript received October 28, 1949.

Susan Isaacs Memorial Fund. The University of London Institute of Education has recently launched a memorial fund to endow a research fellowship in the name of the late Susan Isaacs, to be concerned with the psychology and education of young children. Representatives from other countries have been invited to belong to an executive committee for the purpose of making the fund representative of other countries as well as England. Miss D. E. M. Gardner is taking Miss Isaacs' place as head of the Department of Child Development.

Hutterite Research. A preventative approach to mental health is the basis of a study of a "well adjusted" culture, which is being financed by a grant of $19,364 from the National Institute of Mental Health of the U.S. Public Health Service. The project, entitled "Cultural and Psychiatric Factors in the Mental Health of the Hutterites" will be administered by Wayne University in Detroit, under the direction of Assistant Professor Joseph W. Eaton of the Department of Sociology and Anthropology. Associate Professor James Clark Moloney, M.D., of the Wayne University College of Medicine will serve as psychiatric consultant.

Special attention will be given to child-rearing practices, the adolescent period and the techniques of socializing the young Hutterite to live up to what is expected from him.

Helen Putnam Fellowship for Advanced Research. Radcliffe College recently announced that applications for the Helen Putnam Fellowship for Advanced Research are open to postdoctoral women scholars in the field of genetics or of mental health broadly defined to include such fields as clinical psychology and child development. The stipend will be $2800 a year. Application blanks may be obtained from the Secretary of the Graduate School, Radcliffe College, Cambridge, Massachusetts.

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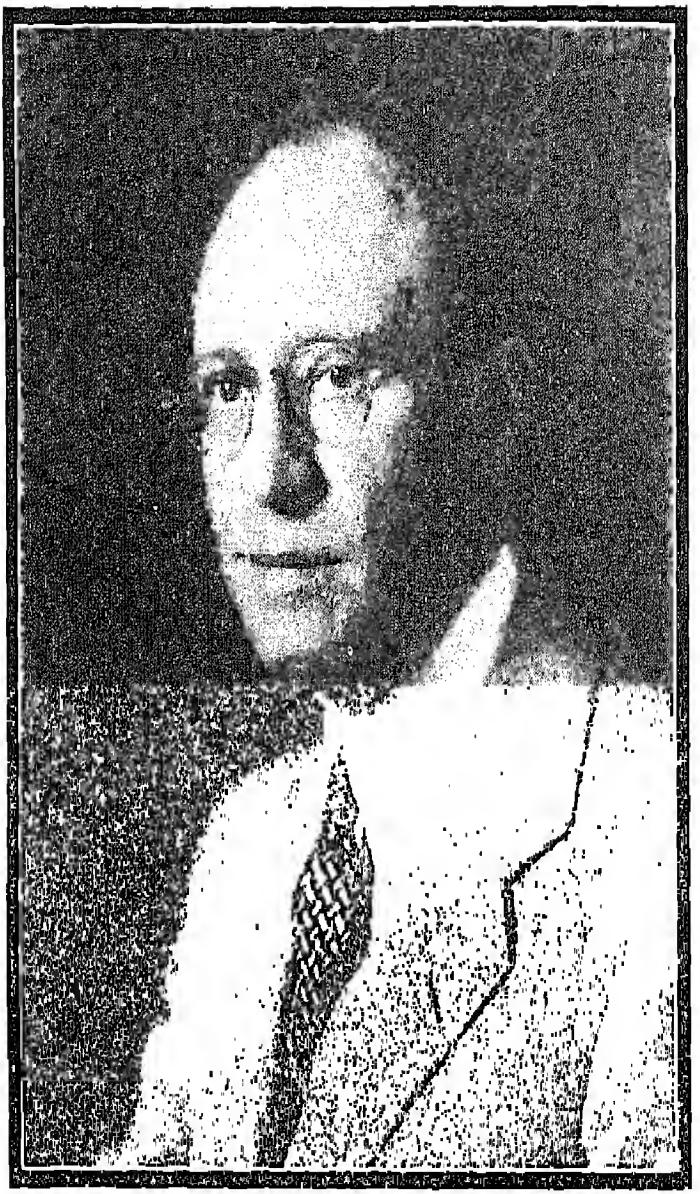

Charles Anderson Aldrich

CHARLES ANDERSON ALDRICH

1888 — 1949

"Andy" Aldrich died on October 5, 1949 at the Mayo Clinic, Rochester, Minnesota. He had gone to the Mayo Clinic in 1944 in order to organize the Rochester Child Health Project of the Section on Pediatrics, and to serve as its director. He was also professor of Pediatrics in the post graduate school of the University of Minnesota.

Dr. Aldrich was born in Plymouth, Massachusetts on March 4, 1888. His family moved to Evanston, Illinois when he was eleven years old. There he attended the public schools and Northwestern University. He graduated with honors from the Northwestern University Medical School in 1915 and took his internship at the New York Nursery and Children's Hospital and the Evanston Hospital during the years 1915 and 1916.

After completion of his internship at the Evanston Hospital, where he was one of the first internes they had ever had, he entered general practice in 1917 in association with Dr. Frank Blatchford in Winnetka, Illinois. Soon thereafter he was married to Mary McCague of Omaha, Nebraska. They had first met one another in their student days at Northwestern. There are two sons, one daughter and six grandchildren. Both of the sons are able physicians.

After a short period in the general practice of medicine, Andy realized fully that his real interest was in the field of Pediatrics. He therefore completed a year of postgraduate pediatric training at Harvard University in 1921 and returned to Winnetka to confine his work to that field of medicine.

Andy really loved babies and children and his warm, friendly personality, his able and inquiring mind together with a great willingness and capacity for work and study soon brought him eminence in his specialty.

He was on the pediatric staff of the Evanston Hospital and the Children's Memorial Hospital, Chicago, later becoming chief of the Pediatric Staff at the Evanston Hospital and in 1941 Chief of Staff at Children's Memorial Hospital, the latter being a full-time position and carrying with it the professorship of Pediatrics at the Northwestern University Medical School. Here he served with distinction until Dr. Henry Helmholz requested him to organize the Rochester Child Health Project in 1944.

During the years of his work at the Children's Memorial Hospital he achieved fame for his outstanding effort in the problems of nephritis and nephrosis in childhood and became an authority in that field. Also during these years he was a prolific contributor to general pediatric literature.

However, his greatest and really abiding interest lay in the problems of child development and behavior. His first publications in this field appeared in 1927. First was an article which appeared in the Journal of the A.M.A.

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entitled, "Prevention of Anorexia in Children." This article was soon followed by the well-known book, *Cultivating the Child's Appetite,* the title of which has since been changed to *Feeding Our Old Fashioned Children.*

These publications created great interest throughout the land among both professional and lay groups and set off a tremendous barrage of related articles by many different authors, none of whom had much to add to what Dr. Aldrich had already written.

The well-known volume, *Babies Are Human Beings,* was first published in 1938. The book was written with the collaboration of Mrs. Aldrich, who was always an able assistant to Andy in the preparation of many of his manuscripts. Considered by many authorities to be one of the finest and most instructive books in its field, it has been of profound influence in the thinking of all persons who are interested in mental hygiene and the behavior of children.

Dr. Aldrich also served with distinction in the teaching and administrative branches of pediatrics. His course in Growth and Development given at Northwestern University Medical School was extremely popular with the students. His instruction of the pediatric residents in the hospital always presented the practical down to earth side of medicine for he realized from experience how important it was to have this point of view in order to achieve success in private practice.

The sucessful development of the new department at the Mayo Clinic was a result of Andy's tremendous curiosity, understanding and wisdom concerning the mental and physical problems of infancy and childhood. He realized that we have only begun to scratch the surface in our present knowledge of why children behave as they do in our complex world, and he eagerly sought new information.

He was able to procure an extremely able staff and fortunately many of them remain to carry on the work. He installed a plan of teaching fellowships in pediatrics which offered unique and non-stereotyped opportunities for the study of pediatric problems. The originality and success of this plan later won a Lasker award.

His group was to prove most productive in their work and it was within only a short time after the department organization had been perfected that the first observations from their early studies began to appear in the medical literature and have frequently continued to do so.

Dr. Aldrich had served as chairman of the Section on Pediatrics of the American Medical Association and was a past president of the Chicago Pediatric Society and of the American Pediatric Society. He was one of the organizers and a charter member of the American Academy of Pediatrics and served on its board of examiners for many years. He was an early member of the Society for Research in Child Development and at the time of his death was its President-Elect and was on the editorial board of *Pediatrics,* the official journal of the American Academy of Pediatrics.

A tribute to Andy Aldrich would be most inadequate without a final word concerning his personal attributes. Among these are found some of the reasons why he achieved his great stature among physicians and friends.

Because of his very numerous medical interests one might believe that he had time for little else, but this was not true. He was a friendly, warm, and tolerant person and a most agreeable companion when fun was the order of the day. He had a great interest in the affairs of his country and his liberal point of view was often quite a trial to many of his more conservative friends and neighbors. His fine sense of humor and his ability to express himself in a clear, logical manner made him a most interesting member of any discussion group.

Andy had a great interest in sports and played tennis regularly and well in spite of a moderate Parkinsonian affliction. The incidence of this difficulty seemed only to spur him to greater effort and he refused to allow it to curb his activities. He could be, and usually was, as excited as any schoolboy when attending the football games of his alma mater and rarely missed a game.

In spite of all his other activities and a large and busy pediatric practice, he found time to serve for several years on his village school board and for years was pediatric advisor and consultant to the Winnetka Public Schools.

Andy Aldrich, as a man, will always be remembered with affection by those who knew him well. As a physician he will live forever in the great realm of medical knowledge to which he was such an original and able contributor.

George F. Munns
Winnetka, Illinois

EGO-DEVELOPMENT AND THE LEARNING PROCESS

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INTRODUCTION

This paper will be concerned with the relationship between variability in mode of ego-development and subjective factors in the learning process. As such it is historically related to a growing movement in psychology and education which seeks to emphasize the role of the needs, emotions, and personality development of the learner in relation to the learning process.

Evidence for this point of view has a long history and has come from many sources—experimental and social psychology, psychiatry, and mental hygiene. Nevertheless it has only received passing recognition by learning theorists (25) and sparse application to educational practice. More than ten years ago Lawrence K. Frank asserted that "the dilemma of education arises from belief in man, as a rational being in whom emotion can be controlled by reason and intelligence" (20). He went on to say that "educational programs shrink from any frank acceptance of the underlying personality make-up and emotional reactions of students as entering into the educational situation—because to do so would bring about a widespread collapse of the whole educational philosophy and undermining of approved pedagogy" (20). And more recently, G. W. Allport has advanced the hope that "learning theory of the future ... will not remain so peripheral to the ego" (1).

The role of the learner was first forcibly injected into learning theory by E. L. Thorndike's emphasis on the importance of motivation and reward, culminating in his controversial law of effect (25). A host of studies were conducted which in general demonstrated the motivational superiority of praise to reproof (3, 11, 26) and indicated the efficacy of group recognition and rivalry (12, 27, 32) as motivating stimuli. Allport (1) has interpreted these findings as indicative of the primacy of the "ego drive" over all other learning motives. On the other hand he has criticized the law of effect by pointing to evidence that "people normally do not strive again for a goal successfully achieved. What they do is to raise their aspirations to a point where they clearly risk failure" (1). Cantor (10) has deplored the use of reward and punishment as learning incentives as calculated to place "motivation for conduct outside the will of the student." And Lewin and his associates have insisted that the meaning of reward and punishment can only be interpreted subjectively in the light of the individual's level of aspiration (14). Evidence points to the fact that this factor is shifted by the

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subject "in such a manner as to maintain his self-esteem at the highest possible level" (1).

Closely related to the problem of motivation is the determination of the optimal degree of tension required to facilitate the learning process. Generally speaking, intense emotion or frustration (9, 23) and very high levels of ego-involvement (1) have a disruptive effect. Yet Mowrer (35) has successfully established anxiety-reduction as a potent motivational factor, and Allison Davis (13) refers to this motive as the driving force in the assimilation of class attitudes and aspirations.

Experimental social psychology has further highlighted the role of subjective factors in the learning process. Experiments by Bartlett (8), Edwards (15), Zillig (46), Watson and Hartmann (45), Wallen (44) and Levine and Murphy (31), among others, have demonstrated the influence of "ethnocentric frame of reference," personal bias, and ego-involvement in determining the quantity, form and longevity of learned and remembered material. Ego-involved tasks which are completed are remembered better than those not completed (39); whereas non-completed tasks that are not ego-involved are better remembered than completed tasks.

Related evidence from the psychology of individual differences (43) and from developmental psychology (28) although not bearing directly on subjective elements in learning has emphasized such factors as individual differences in capacity and "maturational readiness." Much stress is now laid on correctly gearing educational policies and programs to meet the developmental capacities and peculiarities related to each particular age level (18, 21). From this point of view has arisen the concept that the young child responds less to the words of his parents than to "the feeling-tones and emotional tensions with which they are loaded" (10). This also holds true in relation to teachers. Thus, Manske (33) has shown that only a non-prejudiced teacher can modify attitudes of racial prejudice in students by presenting factual material favorable to minority groups.

The most ambitious attempt to relate a theory of personality development to the dynamics of the learning process was made by Cantor (10). Drawing heavily upon concepts developed by Rank and Plant, he analyzed learning sequences in terms of the dichotomous needs for dependence and independence, "identification," "resistance," "projection," and "will-guilt" —conflict. The approach taken in the present paper differs from Cantor's in emphasizing the relationship of *different* patterns of ego-development to the learning process rather than postulating a generalized set of learning principles derived from considerations pertinent to personality development.

Lastly, in rounding out this brief and obviously incomplete historical review, the subjective approach to the learning process has been vigorously championed by proponents of the mental hygiene point of view in education. They argue that if the aim of "education carried on within the framework of mental hygiene" is to "free individuals from personality distortion," the dynamics of the learning process in each student must be under-

stood in terms of the individual meaning of his needs for dependence and independence so that these factors can be taken into account by the teacher in understanding his particular resistances raised to learning, and in discovering efficacious techniques in overcoming them (10, 16, 19). The recent emphasis on active participation of the student in the educational process (10, 28) (a principle whose application has been largely restricted to nursery, progressive private, and university graduate schools) is in accord with the newer approach to psychotherapy which recognizes the greater efficacy of endogenously-derived ego-involved motivations (38, 42). And lastly Redl's analysis of leadership relationships in terms of "ego," "super-ego," and "ego-ideal" patterns (37) recognizes the relevance of personality development for the learning process in the classroom situation.

The problem of understanding learning as an individual matter, thus, (for this paper) resolves itself into the task of identifying those interpersonal[1] mechanisms by which a specific type of personality assimilates new values. While each person has to be considered phenomenologically as a unique example of a given personality category, it is still necessary to set up general categories of personality, and hence general types of learners. The validity of any such classification will depend upon its conformity to *actual* basic divergences in personality development and their associated interpersonal laws of accretion. This means that there will be not one general dynamics of learning, but a *separate* dynamics of learning for each fundamental personality type. And since the essence of the entire process of personality growth may be described in terms of the dichotomous needs for dependence and independence (10), we may distinguish between two main types of personality—the secure and the insecure—as reflecting through the contrasting mechanisms of satellization[2] (5) and incorporation[2] the operation, relative importance, and dynamic interrelationship between those needs.

The field of mental hygiene lies in the prevention and amelioration of distortions in personality development which interfere with the enjoyment of mental health, and which constitute the predisposing factors in the causation of mental disease. The problem of learning—as the acquisition of new values—is relevant to mental hygiene since it comprises so large a part of the process of personality development. Hence, the role of mental hygiene in the learning process lies in the recognition of the different methods of learning that coexist with the different types of personality development, and in utilizing this understanding towards evolving techniques of teaching which not only foster maximal learning within a given method, but also modify advantageously the existing learning method wherever possible.

[1] In this paper, *interpersonal* mechanisms of learning refer to factors associated with personality development. *Personal* refers to other individual differences (in energy, capacity for learning, verbal facility, etc.). *Objective* refers to general factors influencing the course of learning that are not ascribable to individual differences.

[2] For definitions of these terms, see below.

The Relationship Between Objective, Personal, and Interpersonal Factors in Learning

Education is obviously an *interpersonal* phenomenon since from almost the very beginning of a person's existence, we witness the "individual taking over community points of view, and society reciprocally absorbing the individual's modification of the prevailing ideology" (10). Learning does not take place in a vacuum, but only in relation to other individuals who themselves—despite the existence of personal emotional ties—act largely as personal representatives of a given cultural organization. During the course of personality development, the individual acquires a characteristic method of learning (satellization or incorporation). This not only predetermines his mode of acquiring new value-judgments, but also influences the scope, the depth, the motivations and the efficiency of the learning process.

However, the process of learning may also be described *objectively* in conceptual terms as consisting of those inner structural and organizational changes which occur in ideas while they acquire individual meaningfulness. This objective aspect of learning which takes place concurrently with the interpersonal aspect is a dynamic process reflecting the development of the meaningfulness of a given idea in a specific individual. At any given time when an individual is exposed to a new idea or to a new aspect of an old idea, a certain equilibrium prevails between that idea and the totality of his prevailing organization of concepts. This is the framework of reference confronting a new idea; and the task of learning is to integrate this new concept into his existing framework of ideas, so that in terms of the newly organized whole it has a personal meaning which is applicable to the interpretation and solution of the usual problems of living. The process by which such new ideas are "imbedded" in the existing structure involves the mechanisms of levelling, sharpening, and assimilation (2).

Whether meaningfulness is actually achieved depends upon the degree of integrative effort put forth (which is a function of such personal factors as energy, interest, will to learn, active participation and intellectual capacity), and also upon various interpersonal factors.

In the learning of simple factual material, it is the *personal* aspects of individual differences which are mainly relevant. However, where *values and judgments* are involved, the *interpersonal* mode of learning becomes an important co-aspect of the learning process.

In this psychologically-minded era, it is hardly necessary to defend the statement that interpersonal factors are involved in the assimilation of values, since few people would maintain today that this is a purely rational, objective, or impersonal process. What is necessary, however, is to relate differences in ego-development to mode of value-acquisition (satellization and incorporation). While in this paper, we are mainly interested in those individual differences in learning which are related to the interpersonal

method of learning employed, we must also be concerned with the effect of these differences on the operation of the personal factors listed above.

Brief Summary of Ego-Development[3]

From an amorphous concept originally indistinguishable from the totality of the child's impressions (22, 34, 36, 41), the ego emerges at three as a relatively clear percept endowed with a full quota of omnipotence (7, 17, 34). This notion of grandiosity can, for the most part, be ascribed to the fact that he has been living in an environment benevolently structured in terms of meeting his needs (34). Relatively few demands have been made upon him to conform to external requirements. And although manifestly incompetent in the matter of self-help, he has been amazingly successful in gratifying his wants. No wonder then that he conceives of himself as volitionally omnipotent (5, 7).

Soon, however, the child's concept of self must undergo radical devaluation. As he manifests greater executive competence, he becomes subject to greater pressures to conform to parental expectations (34). Clearer perception of the nature of reality forces him to acknowledge his relative unimportance and his volitional impotence. Thus, the grandiose state of ego-organization becomes untenable; and since reality can no longer support its pretensions he is required to find a sense of adequacy within a more modest and realistic framework of ego-organization (5, 7).

The most satisfactory reorganization of ego-structure takes place through the process of *satellization*, in which the child identifies as a subordinate figure in relation to the dominant role of the parents (5). By virtue of his complete acceptance of this dependent position, he becomes automatically assured of intrinsic feelings of security and adequacy,—providing, of course that he is emotionally accepted and valued for his own sake (5). The rejected child obviously cannot satellize, and is hence compelled to cling to his former untenable ego structure (5). The extrinsically-valued child—unassured of appreciation for his own sake—is placed in the same position: To remain adequate in his own eyes he feels obliged to fulfill the grandiose pretensions of his infantile ego which his ambitious parents do nothing to deflate. However, in the latter case, the retention of the infantile structure is quite compatible with the adulation with which he is surrounded; whereas in the face of a hostile environment, the rejected child must harbor his omnipotent fancies within (7).

In the satellizing child, the ego-structure gradually takes on a new appearance once resistance (infantile negativism) to accepting the new status wanes (7). There is marked deflation of the notion of self-importance and of volitional omnipotence. The child accepts more readily parental limitations upon the free exercise of his will. The obstreperous pursuit of pleasure and the insistence on *immediate* gratification become attenuated as the

[3]For a fuller account of the process of ego-development, see D. P. Ausubel, Negativism as a Phase of Ego-Development (7).

need for parental approval becomes stronger. Executive independence expands, and goals are projected farther into the future. And finally the child accepts responsibility for meeting the moral standards of his parents (7).

It becomes apparent that further ego-development in later childhood and adolescence involves primarily a reversal of the volitionally dependent aspects of satellization, while accentuating the trend toward non-hedonistic goals and greater executive independence. The non-satellizing child, however, is largely spared the task of regaining volitional independence since he has never really surrendered it (6, 7).

But if emancipation is easier for him, the non-satellizing child faces other difficulties. To satisfy his undevalued and "hypertrophic" ego-demands, power and prestige must be achieved in reality (since grandiosity cannot be blithely assumed as in the uncritical days of infancy); because only in this "extrinsic" fashion can he gain any semblance of the intrinsic security and adequacy associated with satellization. This is obviously a difficult task for the rejected child, who can gain no recognition at home and must suffer the constant humiliation of forced submission to an authority he doesn't respect, as well as reluctant acceptance of economic dependence. This immediate trauma to self-esteem produces an anxiety state which tends to be perpetuated by the maintenance of an aspirational level far in excess of realistic considerations—a condition predisposing toward chronic injury to self-esteem (5, 7). It is further accentuated by emotional isolation from others; since, although he would welcome other emotional attachments, he is much too afraid of a repetition of rejection to hazard the necessary emotional exposure.

As noted above, the over-valued child fares better initially, since his omnipotent ego-structure is nurtured in an environment which values him on his own terms and grants free reign to his expansive will. Hence he is spared the immediate trauma to self-esteem which precipitates an anxiety state. Yet lacking intrinsic feelings of security and adequacy, he is completely dependent on external criteria of prestige for the maintenance of their extrinsic counterparts. And since his level of aspiration is also pegged above realistic expectations of success, he too is predisposed toward those serious traumas to self-esteem that induce anxiety conditions (4, 7).

Ego-Maturation and the Learning Process

The problem of maturation (emancipation) presents no great difficulty to the intrinsically insecure child (6). Having a strong, hypertrophic ego, and having formed no relationships of satellization, his attitude is independent throughout, both in self-assertion and in learning from others. He easily adopts independent adult ego-demands of his own through self-assertion and by incorporating new values into his personality. These new values naturally represent threats to his present value-organization, and, hence, are resisted at first with all the vigorousness of his robust egoism and self-assertiveness. Once this resistance is broken down, however, the

new values can be *incorporated*, that is, taken bodily into his own value-system, and regarded as his own without any implication of an emotional bond arising between him and his preceptor, and without any suggestion of satellization. This learning process is strictly an act of independence requiring no subservience of self to others, and no personal adherence to an exponent of alien values.

The expression of this self-assertion and independence is invariably an inner necessity of his personality development and of his method of growth and maturation, and manifests itself either as resistance to learning or as learning via incorporation. The voluntary expression of dependence is inconceivable in such persons—since to them dependence is tantamount to admission of the inferiority against which all their strivings are directed: Intellectual or value satellization in the absence of emotional satellization can only be equated with humiliation.

In the secure individual, on the other hand, the problem of ego-maturation is much more difficult. He is less self-assertive, and he has unquestionably accepted satellization and dependency on his parents. Unlike the insecure child, he is able, because of his personal emotional identification (satellization), to accept dependency (of action, values and attitudes) without experiencing any feelings of inferiority. Personal emotional satellization has paved the way for the satellization of values and attitudes; and the assertion of independence is not a compelling, driving force, but frequently gives way when it conflicts with parental allegiances in order to avoid arousing feelings of guilt. The process of ego-maturation in the secure individual (emancipation from dependency on parents) is thus beset by considerable difficulties and hazards, and not infrequently ends in failure with the production of a motivationally immature and inadequate individual (4, 7). This is in direct contrast to the insecure individual who rarely fails to undergo ego-maturation.

The acquisition of new values (learning) in the secure personality is primarily a process of accepting the values of persons with whom he identifies emotionally. In the beginning, while he still learns primarily from his parents, the learning process encounters only the moderate resistance offered by his own self-assertion, and is facilitated by his desire to avoid guilt feelings. Later, when parental surrogates enter the picture, resistance to new learning is strengthened by the natural reluctance to repudiate primary allegiances and to assume the associated burden of guilt. (Since insecure individuals do not learn primarily by forming personal identifications, and hence in their system of values have no deep primary allegiances, the possibility of experiencing guilt by virtue of repudiating these primary loyalties is not present). Learning thus proceeds by a process of forming successive personal identifications, each of which involves overcoming the resistance inherent in the necessity for repudiating a prior identification (and its associated burden of guilt).

Insofar as maturation may be defined in terms of complete emancipation

from the attitude of dependency, it becomes an unattainable goal for the satellizer, since the independence associated with renouncing one value is counterbalanced by the dependence involved in identifying with another. However, maturation involves more than just achieving a certain desirable degree of independence from slavish adherence to parental values. It includes the entire growth process of the personality whereby new values are constantly being assimilated and old ones rejected. In the secure person, the method of accretion is by satellization. In the insecure personality, the corresponding method is one of incorporation, except for the rejected child in whom a latent capacity for satellization always resides.

Thus, although the attitude of independence cannot be equated with the process of maturation, in one sense it greatly facilitates the learning process since (a) there is no resistance to learning stemming from reluctance to repudiate personal loyalties and to incur the associated burden of guilt; (b) the process of incorporation implies more active and positive participation in learning than does satellization; (c) there is more ego-inspired drive to learn in "incorporators" (everything else being equal). On the other hand, there is increased resistance to the acceptance of new values on a pure ego-status basis, since new values pose an exaggerated competitive threat to personality integrity. There is also the danger of excessive ego-involvement impairing the efficiency of learning process (1) and of extrinsic prestige drives completely displacing intrinsic motives. In most cases, however, a reciprocal or circular relationship holds between extrinsic and intrinsic motivations, the enhancement of one leading to the greater development of the other.

The terms "satellization" and "incorporation" are used by the writer to get around the semantic confusion surrounding the older term "identification." In current psychological literature (24), the latter term is used to cover at least three different general meanings: (a) to make common cause emotionally with persons *like oneself;* (b) to link oneself emotionally—to associate oneself in common cause with someone on whom one is or becomes dependent (e.g., child's relation to parent) and to accept his values on the basis of personal loyalty; (c) to accept, to identify with or to incorporate the values of another on the basis of their objective capacity to enhance ego-status—without forming any basic emotional tie to that individual.

In both "b" and "c" above there is assimilation of the goals of another; but in "b," the assimilation is secondary to the formation of an emotional bond, while in "c" it is merely an objective emulation of goal. It is the same distinction that can be drawn between the hero-worshipper who wants to sit at the feet of the master, and be like him in every way, and the hero-worshipper who worships not the hero but his capacities and prestige, and would like to succeed to them. The former is a satellizer; the latter an incorporator. The first meaning ("a") illustrates a form of externalized narcissism (accepting someone or something like oneself, as an ex-

tension of one's ego), and is hence a subtype of incorporation, but not coextensive with it. It requires no submergence or satellization of self to others, but merely incorporation of an externalized mirror image of self.

These two varieties of value assimilation involve no new principles of cognitive reorganization that are not operative in the ordinary formation and change of attitudes and beliefs (29). Initial confrontation with new value-giving experience finds the child unprepared with a relevant framework of reference. In this situation he naturally tends to rely on social norms (36, 40), and is especially susceptible to prestige suggestion (29) for the evolution of his attitudes. In the non-satellizer, "prestige suggestion by changing the individual's environment through manipulation of either word objects or other objects can result in a change in the nature of the perceived object" (29). Within the framework of his needs for ego-aggrandizement therefore, his beliefs are responsive to the objective influence of the "authority" judgments of others.

In satellizers, however, a prestige suggestion is "accepted because of the need of the individual to agree with the person making the suggestion. In such cases, the individual first accepts the suggestion and then the perceptual qualities of the object are changed. ... Where the suggestion is counter to the belief already held, the recipient will ... rationalize the object perceived so that it is congruent with his new judgment. ... This will typically occur where there is close identification between the suggester and 'suggestee'" (29). The satellizer's mode of learning conforms more to the "ego-ideal" pattern of student-teacher relationship described by Redl (37) (student loves, admires, and hence emulates teacher) than it does to the "super-ego" pattern (student respects teacher and desires his approval), but both elements are undoubtedly present. In the case of the incorporator, neither pattern is especially relevant since the important determinants of value acceptance are not related to the teacher as a person but rather as an exemplifier of desirable and expedient goals and as an "ego facilitator" (Redl's "ego support" pattern).

Satellization is thus the method of value-assimilation in persons who have achieved an intrinsic sense of security and adequacy as a result of experiencing a normally dependent emotional relationship with their parents. There is always some submergence of individuality and attenuation of self-assertion. Emotional identification is established with another individual as such, and the acceptance of his values and goals are but subsidiary outgrowths of the personal loyalty which is thereby established. The identification is primarily with the person and not with the value. As a method of learning, satellization involves little ego-aggrandizement, since the ego is cast in a secondary role and at best could bask in reflected glory. Motivation for learning is thus (at least initially) not essentially prestige-derived or ego-inspired. In consequence, the will to learn will not be uniformly high, but will be a function of the strength of other intrinsic sources of motivation.

Incorporation, on the other hand, represents an assertion of the drive for independence, and an expression of individuality which is so powerful in ego-hypertrophic individuals, since it is the only way they have of achieving a compensatory extrinsic sense of adequacy. There is primary identification with goals and values as such (as goal-objects or goal-persons whose possession is desired) and not secondarily with these objects as attributes of another individual with whom the primary identification is made. However, from this it is *not* to be inferred that "incorporators" do not form emotional ties with their values, goal-objects or goal-persons. If such were the case they would all be suffering from a variety of schizophrenia. The emotional bond which is formed, however, involves no yielding or subservience of self to another person. As a result, "true love" is inconceivable in an absolute "incorporator" since his approach to other individuals is always in terms of how *they* can satisfy *his* needs.

Differences in Learning Related to Satellization and Incorporation

Approach to a new learning situation. The incorporator has no intrinsic feeling of security or adequacy, and not infrequently is the victim of an anxiety neurosis. He enters a new learning situation with *a priori* feelings of inadequacy, apprehensiveness, and lack of confidence in his ability to cope with it. He is thrown into a state of virtual panic as a result of his exaggerated response to all new situations which pose any semblance of a threat to the precarious security of his status quo, and the precarious state of his self-esteem. This panic manifests itself as a complete paralysis of activity (blocking), or by desperate clinging to a stereotyped, non-adaptive, face-saving response—as a tangible straw on which to seize in the sudden blinding attack of anxiety. He, therefore, attempts to forestall a new situation by making excessive advance preparations which "negate the element of newness" (4).

The satellizer, on the other hand, enters the new learning situation secure and confident in his ability to eventually master it. He does not fear new situations as such, and makes no excessive advance preparations.

The basis and course of resistance to change. The incorporator resists new values because: (1) Merely by being *new,* they pose an exaggerated threat to his security; (2) they represent a personal challenge to ego-prestige since they conflict with the present organization of values which is primarily oriented on an ego-prestige basis; (3) by lacking sufficient confidence in the ultimate outcome of the learning process, he is naturally reluctant to undertake new learning which could end in failure, or at any rate constitute a threat to his security while still incomplete and tentative. The questions of self-esteem and ego-prestige are uppermost in his consideration of new values. Thus, there is almost a tendency toward initial "reflex" rejection of same. Resistance is greatest at first, but declines later

as panic subsides, and the possibility of further ego-aggrandizement by incorporation of the new value presents itself.

The satellizer resists learning mostly because new values pose a threat to his primary personal loyalties which he is reluctant to repudiate at the cost of experiencing feelings of guilt. Resistance is moderate at first, and often seems to vanish completely with complete acceptance of the new idea, until the above-mentioned implications of this acceptance are suddenly realized, often resulting in a precipitate and seemingly inexplicable "about-face."

Reaction to initial failure. The incorporator—because of his lack of underlying intrinsic security and adequacy—reacts to failure by a feeling of unworthiness and inadequacy, by a loss of self-esteem and self-confidence. "Initial defeat has a disastrous effect on his subsequent performance ability" (4) since he magnifies its effect far in excess of its true significance; and even if some objective measure of success is achieved later, its effect is largely wasted on him, since the underlying lack of self-esteem precludes much subjective experience of success. Following such failure, with its accompanying depression of self-esteem, the incorporator may become excessively uncritical of other persons so that he might be able to logically and consistently apply the same uncritical standards to himself; he might become aggressive and seek to improve his own relative standing by attempted character annihilation of others; or attempt to excel or show his superiority in some other ostentatious or esoteric field.

The satellizer does not react to initial failure disproportionately, and isn't completely disorganized by it, since he has confidence in his ability to ultimately succeed irrespective of early setbacks.

Reaction to disapproval. The incorporator is only concerned with earning the approval of his teacher insofar as this enhances his extrinsic sense of adequacy (since he has no personal emotional tie to him), but disapproval (by serving as an objective index of failure) has a very disruptive effect on his personality by depressing his self-esteem and increasing his sense of inadequacy and anxiety. Disapproval seldom results in guilt feelings.

On the other hand, the teacher's approval is very important emotionally (not merely as an objective indication of success) to the satellizer, that is, if he has accepted some of the former's values on the basis of personal loyalty. Receipt of disapproval will heighten his feelings of guilt if he repudiates these values, but will not seriously disrupt personality stability by giving rise to feelings of insecurity and inadequacy. If the satellizer, however, is defending primary loyalties (e.g., those derived from parents) against the teacher, the latter's disapproval does not have the same effect.

Reaction to paternalistic teaching. Both satellizers and incorporators will react negatively to the authoritarian and autocratic inculcation of new values. But as might be expected, however, the incorporator will react much more violently since he has never accepted this pattern of teaching. He is

also less responsive to less extreme forms of paternalistic teaching such as guidance and suggestion.

The meaning of timidity. In the incorporator, the expression of timidity relative to airing his opinions before a group is indicative of his general fear of competitive situations in which he might fare badly and accordingly suffer a deflation of self-esteem in public without any possibility of "explaining away" his defeat. In the satellizer—in whom such public discussions are not primarily structured in terms of ego-prestige—timidity is indicative of such extreme dependency on others for thought-orientation, that self-assertion or initiative in expressing an opinion becomes an impossibility.

Will to learn. In incorporators, the motivation for learning is primarily ego-inspired, and is spurred on by the urge to at least obtain an extrinsic feeling of adequacy and security through superior accomplishments. In satellizers who start out with an intrinsic feeling of adequacy and security, little of this compensatory ego-inspired drive is present. Hence, everything else being equal, the will to learn in incorporators will be greater and more uniformly high than in satellizers. This, of course, does not mean that all creative endeavor is an expression of inflated ego-inspired drives (since energy, interest, talent, and intelligence are sufficient of themselves to produce any creative effort), but that incorporators have a potent additional (ego-inspired) source of motivation. A satellizer not infrequently possesses insufficient drive to develop even considerable talents; while an incorporator makes the most of what little talent he has within the limits imposed by his anxieties.

Degree of active participation in learning. It is obvious that incorporators will expend a great deal more active effort than satellizers in integrating a new value into their existing value-systems, since they seldom accept a new value on the basis of a personal, emotional bond, but only after active and critical scrutiny of the objective capacity of the new value to enhance their ego-status. This criterion of acceptability is naturally not fully objective either, but it is less subjective, and more active than acceptance on the basis of personal loyalty.

Implications for the Teaching of Incorporators

(a) The instructor must recognize that the incorporator learns without the formation of any emotional bond to him, and should never try to force learning by satellization (which the incorporator equates with inferiority, humiliation and defeat). The role of the teacher in relation to the incorporator should be that of a human catalyst—serving to objectify and clarify the data that is to be incorporated. He is primarily a vehicle for the transmission of values and not a personal figure with whom the primary identification is made as a prelude to the secondary acceptance of the value.

(b) At the same time, the instructor should be aware of the bases of resistance to learning in incorporators, namely, the fear of new situations, ego-prestige considerations, and the fear of tentative conclusions. In the classroom, this resistance, as well as timidity, can be best overcome by: (1) objectifying discussion as much as possible and divorcing it from all connotations of a personal struggle between wills (10); (2) by avoiding paternalistic teaching techniques; (3) by bestowing as much approval as possible, and by avoiding disapproval, especially at the beginning, thereby bolstering self-esteem in the face of initial difficulties when it is apt to suffer unduly from deflation. The instructor should recognize the panic which ensues upon confrontation with new situations, and upon experiencing early defeat, and should allow the student to withdraw as gracefully as possible without taking advantage of this panic to drive home a point. He should be aware of the fact that resistance to learning is greatest at the onset, and diminishes with time, and he should not himself become impatient with this initial "reflex" rejection of new ideas. In *private* conference with the student, he can endeavor to help the latter gain some insight into the basis of his resistance to learning, and in this way enlist his cooperation in attempting to overcome same. He should never use disapproval as a stimulus for learning because of its excessively disruptive effect on the student's self-esteem.

(c) The instructor should recognize and make constructive use of the incorporator's greater ego-inspired will to learn and capacity for active participation by setting higher standards for him, and by giving him projects requiring greater initiative and constructive effort.

(d) If the instructor is also psychotherapeutically-minded, he might endeavor to partially change the method of learning in the "rejected" group of incorporators by providing the proper atmosphere for the emergence of latent capacities for satellization, and by allaying the ever-present dread of repetition of emotional rejection.

Implications for the Teaching of Satellizers

(a) The instructor can never forget that he represents a parental surrogate to the satellizer, and that the latter identifies primarily with him as an individual, and only secondarily with the ideas and values that he presents. His personality is more than just a neutral vehicle for the transmission of values; it is the object of primary emotional identification. The instructor can no more expect a satellizer to incorporate values than he can expect an incorporator to assimilate values via satellization. He must, therefore, extend emotional acceptance unequivocally to the student regardless of approval or disapproval of his ideas (10).

(b) The instructor must appreciate that new values are resisted because their acceptance implies repudiation of primary personal loyalties and the necessity for assuming the associated burden of guilt; that resistance is

minimal at first until these implications become clear, and then may flare up unexpectedly in full force at a later date. He will, therefore, never try to hurry the acceptance of ideas prematurely, because sooner or later, the necessity for repudiation of earlier allegiances must arise; and if the idea is prematurely assimilated, a strong reaction against it will inevitably be invoked.

(c) The great danger with satellizers is that they will retain old values and accept new values (and prejudices) passively, dependently, and uncritically merely on the basis of personal identification. Thus, it becomes very important to tone down the dependent aspects of satellization, and to encourage active, critical and independent habits of thought. In the classroom, this can be done by: (1) objectifying discussion as much as possible, and by refusing to accept "blind" identification with the instructor's opinions; (2) by avoiding the use of praise when the student agrees with the instructor's point of view, and the use of disapproval when the student's reaction is critical. The student must be made to feel as little guilt as possible in connection with discarding the instructor's values. Disapproval, however, can be used as an effective stimulus for learning in the case of overdependent students who dodge their responsibilities, since guilt feelings are not overly disruptive to the stability of personality, and can be used constructively to motivate improvement (10). Praise should be reserved for instances of active participation; (3) by avoiding the use of paternalistic teaching despite the satellizer's responsiveness to same; (4) by refraining from making agreement with the instructor the price of the personal emotional acceptance which he so eagerly seeks.

This aim can also be furthered in personal conference by giving the student insight into the dangers of overdependent satellization, and by encouraging him to accept greater responsibility for his own decisions. The instructor, however, can accomplish little in this respect without the parents' cooperation in helping to emancipate the child from the home. Because of the child's inevitably dependent position at home, he finds it extremely difficult to repudiate identification with parental values. The process of emancipation will be facilitated if the child is always made to feel that he is free to accept or reject parental values, and that rejection will not lead to withdrawal of parental emotional acceptance; and if the developing child acquires sources of security outside the home so that he feels he can reasonably afford to break with the parental ties without becoming isolated.

(d) In the absence of much ego-inspired will to learn, the instructor must develop all other non-ego-inspired sources of motivation to their maximum capacity.

Which Is to Be Preferred: Satellization or Incorporation?

In any discussion of the mental hygiene implications of individual differences in learning, it is impossible to avoid the ultimate question of the

relative advantages and social desirability of satellization and incorporation. Which method is preferable, and which method should society foster in the education of the young? There are certain very definite advantages to the method of incorporation as has already been pointed out. But this is the method of the insecure personality; and insecurity is too high a price to pay in personal happiness for these advantages in learning. Some sort of compromise is necessary in which the developing individual will emerge from the process of ego-maturation secure, but more mature and independent than is presently possible with the method of satellization at home and in school. This can be accomplished by toning down the dependent aspects of satellization, and encouraging independence by the educational methods outlined above.

It is not to be inferred from the above description of satellizers and incorporators that all learners are necessarily pure examples of either type. For the sake of brevity, only the extreme variety of each type has been depicted. Just as the transition between security and insecurity constitutes a continuum with all degrees and gradations represented between extremes, so we can conceive of an infinite variety of learning types combining various proportions of satellization and incorporation. The expression of a given learning method is also relative to time, place and situation, i.e., a parent generally incorporates the value represented by his child; but in his old age, he may learn from the latter by satellization as the relations of dependency are reversed.

Summary and Conclusions

Following the "omnipotent" stage of ego-organization the further course of ego development is largely determined by whether or not devaluation and satellization occur. The latter processes, taking place in children emotionally accepted and valued for themselves, give rise to intrinsic feelings of security and adequacy. Maturation of the ego in the pre-adolescent and adolescent periods then primarily involves a shedding of volitionally dependent attitudes (desatellization).

Satellization does not occur in either rejected or extrinsically (and overvalued) children. The grandiose and omnipotent infantile ego-structure is retained; and lacking intrinsic security and adequacy, their extrinsic counterparts can be realized only by gratifying excessive needs for power and prestige. These unrealistically high levels of aspiration precipitate manifest or latent states of anxiety by predisposing toward chronic trauma to self-esteem. Later ego-maturation is relatively easier and less frequently unsuccessful since the crucial attitude for emancipation—volitional independence—had never been relinquished.

In satellizers the method of assimilating new values occurs largely through a process of "intellectual satellization," in which acceptance of the value is secondary to an attitude of emotional subordination to the precep-

tor. Resistance to learning arises through reluctance to repudiate prior loyalties, and hence to assume the associated burden of guilt.

In the non-satellizer such emotional subordination is humiliating and is equated with defeat. The accretion of new values occurs through a process of incorporation, the new value being incorporated on the basis of objective and ego-prestige factors. Resistance to learning is a function of the exaggerated threat which the element of newness poses to his precarious state of security, often producing an initial reaction of panic. Initial failure tends to unduly disrupt performance. Disapproval has a similarly disruptive effect. He reacts more violently to paternalistic teaching, and his will to learn tends to be uniformly higher than in the non-satellizer due to the additional presence of this "ego-inspired" drive.

The implications which these differences in learning process have for teaching methods have been discussed. If his students fail to learn, the instructor may well wonder (1) if he is not being that impersonal in his emotional attitude towards students (not toward subject matter) that the satellizer finds it impossible to satellize and (2) if his teaching methods are too authoritarian to permit the incorporator to incorporate.

References

1. Allport, G. W. The ego in contemporary psychology. *Psychol. Rev.*, 50, 451-478, 1943.
2. Allport, G. W. and Postman, L. J. The basic psychology of rumor. *Trans. N.Y. Acad. Sci.*, Series II, 8, 61-81, 1945.
3. Anderson, H. E. and Smith, R. S. Motivation of young children: The constancy of certain behavior patterns. *J. exp. Educ.*, 2, 138-160, 1933.
4. Ausubel, D. P. The psychopathology and treatment of drug addiction in relation to the mental hygiene movement. *Psychiat. Quart. Supplement*, 22, Part 2, 219-250, 1948.
5. Ausubel, D. P. A psychopathological classification of schizophrenia. *Psychiat. Quart.*, 23, 127-144, 1949.
6. Ausubel, D. P. Problems of adolescent adjustment. *Bulletin*, National Association of Secondary-School Principals, 34, 1-84, Jan., 1950.
7. Ausubel, D. P. Negativism as a phase of ego-development. *American J. Orthopsychiat.*, in press.
8. Bartlett, F. C. *Remembering: A Study in Experimental and Social Psychology*. Cambridge, England: University Press, 1932.
9. Birch, H. G. The role of motivational factors in insightful problem-solving. *J. comp. Psychol.*, 38, 295-317, 1945.
10. Canton, N. *The Dynamics of Learning*. Buffalo: Foster and Stewart, 1946.

11. Chase, L. Motivation of young children: an experimental study of the influence of certain external incentives upon the performance of a task. *Univ. Ia. Stud. Child Welf.*, No. 3, 1932.

12. Dashiell, J. F. An experimental analysis of some group effects. *J. abnorm. soc. Psychol.*, 25, 190-199, 1930.

13. Davis, A. Socialization and Adolescent Personality in "Adolescence," *43rd Yearbook*, part I, National Society for the Study of Education. Chicago: University of Chicago Press, 1944.

14. Dembo, T., Lewin, K., Festinger, L. and Sears, P. S. Level of aspiration, in *Personality and Behavior Disorders* (J. McV. Hunt, ed.), Chapter X, Vol. 1, New York: Ronald, 1944.

15. Edwards, A. L. Rationalization in recognition as a result of a political framework of reference. *J. abnorm. soc. Psychol.*, 36, 34-50, 1941.

16. Ephron, H. S. Mental hygiene in social reconstruction. *Amer. J. Orthopsychiat.*, 10, 458-465, 1940.

17. Fenichel, O. *The Psychoanalytic Theory of Neurosis*. New York: W. W. Norton, 1945.

18. Frank, L. K. Fundamental needs of the child. *Ment. Hyg.*, 22, 353-379, 1938.

19. Frank, L. K. The reorientation of education to the promotion of mental hygiene. *Ment. Hyg.*, 23, 529-543, 1939.

20. Frank, L. K. Dilemma of leadership. *Psychiatry*, 2, 343-361, 1939.

21. Fries, M. E. The child's ego-development and the training of adults in the environment. *Psychoanalytic Study of the Child*, 2, 85-112, 1946.

22. Gesell, A. and Ilg, F. L. *Infant and Child in the Culture of Today*. New York: Harper, 1943.

23. Hamilton, G. V. *An Introduction to Objective Psychobiology*. St. Louis: C. V. Mosby, 1925.

24. Hart, H. H. Problems of identification. *Psychiat. Quart.*, 21, 274-293, 1947.

25. Hilgard, E. R. *Theories of Learning*. New York: D. Appleton-Century, 1948.

26. Hurlock, E. B. Value of praise and reproof as incentives for children. *Arch. Psychol.*, No. 71, 1925.

27. Hurlock, E. B. The use of group rivalry as an incentive. *J. abnorm. soc. Psychol.*, 22, 278-290, 1927.

28. Jersild, A. T. *Child Development and the Curriculum*. New York: Bureau of Publications, Teachers College, Columbia University, 1946.

29. Krech, D. and Crutchfield, R. S. *Theory and Problems of Social Psychology*. New York: McGraw-Hill, 1948.

30. LANTZ, B. Some dynamic aspects of success and failure. *Psychol. Monogr.*, 59, No. 1, 1945.

31. LEVINE, J. and MURPHY, G. The learning and forgetting of controversial material. *J. abnorm. soc. Psychol.*, 38, 507-517, 1943.

32. MALLER, J. B. Cooperation and competition: An experimental study in motivation. *Teach. Coll. Contr. Educ.*, No. 384, 1929.

33. MANSKE, A. J. The Reflections of Teachers' Attitudes in the Attitudes of their Pupils. Teachers College, Columbia University (Ph.D. thesis), 1935.

34. MASSERMAN, J. *Principles of Dynamic Psychiatry.* Philadelphia: W. B. Saunders, 1946.

35. MOWRER, O. H. Anxiety reduction and learning. *J. exp. Psychol.*, 27, 497-516, 1940.

36. MURPHY, G. *Personality: A Biosocial Approach to Origins and Structure.* New York: Harper, 1947.

37. REDL, F. Group emotion and leadership. *Psychiatry*, 5, 573-596, 1942.

38. ROGERS, C. R. *Counseling and Psychotherapy.* Boston: Houghton-Mifflin, 1942.

39. ROSENZWEIG, S. An experimental study of "repression" with special reference to need-persistent and ego-defensive reactions to frustration. *J. exp. Psychol.*, 32, 64-74, 1943.

40. SHERIF, M. *The Psychology of Social Norms.* New York: Harper, 1936.

41. SHERIF, M. and CANTRIL, H. *The Psychology of Ego-Involvements.* New York: Wiley, 1946.

42. SNYGG, D. and COMBS, A. W. *Individual Behavior: A New Frame of Reference for Psychology.* New York: Harper, 1949.

43. TYLER, L. E. *The Psychology of Human Differences.* New York: D. Appleton-Century, 1947.

44. WALLEN, R. Ego-involvement as a determinant of selective forgetting. *J. abnorm. soc. Psychol.*, 37, 20-39, 1942.

45. WATSON, W. S. and HARTMANN, G. Rigidity of a basic attitudinal frame. *J. abnorm. soc. Psychol.*, 34, 314-336, 1939.

46. ZILLIG, M. Einstellung und aussage. *Z. f. Psychol.*, 106, 58-106, 1928.

AGE TRENDS AND SEX DIFFERENCES IN THE WISHES, IDENTIFICATIONS, ACTIVITIES AND FEARS OF CHILDREN

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The Wishes and Fears Inventory, as formulated by Dr. Martin L. Reymert, has been used as a diagnostic device for a number of years at the Mooseheart Laboratory for Child Research. This Inventory consists of questions concerning the wishes of the child, his positive and negative identifications, his desired and undesired activities, his fears and earliest recollections. Since more comprehensive criteria were needed for the clinical interpretation of this material, this study was undertaken to indicate the major sex and age differences in types of responses.

POPULATION

As a result of the yearly diagnostic testing of each of the 750 children at Mooseheart,[2] each child's folder of clinical information in the Mooseheart Laboratory contains several complete Wishes and Fears Inventories. These folders were inspected in irregular order for 72 Inventories that would fit the criteria of age, sex and intelligence. The first Inventory in a folder that would fit the criteria was chosen for this study. In cases where more than one child from a family was at Mooseheart, the Inventory of only one child from that family was used. Twelve Inventories for boys and twelve for girls were selected at each of three age ranges, from 7 years 0 months to 8 years 11 months, from 11 years 0 months to 12 years 11 months, and from 15 years 0 months to 16 years 11 months. In each group of twelve, six Inventories were selected from children with IQ's ranging between 90 and 110 on their most recent Stanford-Binet Intelligence Test, three from children having IQ's that ranged below 90, and three from children having IQ's above 110.

Table I, concerning the sample population selected, indicates that the distribution of IQ's was fairly normal and that the average age and grade

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[2] Mooseheart, the City of Childhood, is operated by the Loyal Order of Moose for the children of its deceased members. Entire families may be admitted to the community upon the death of the father, each child remaining until graduation from high school at the average age of 18.5 years.

for each age group was similar for boys and for girls. The average length of time the 15- and 16-year-old children had been at Mooseheart was considerably longer than it had been for the younger children and this may alter the results, but we do not know how much or in what way. Since the children at Mooseheart are half orphans or full orphans, they would be likely to give responses different from those of children who live with their parents. Although these children come from all over the United States and

TABLE I

DATA CONCERNING THE POPULATION SELECTED

	BOYS			GIRLS		
Age in Years:	7–8	11–12	15–16	7–8	11–12	15–16
No. of cases	12	12	12	12	12	12
Average age (yrs. and mos.)	8—3	11—10	15—6	8—1	11—11	15—8
Average IQ	104	99	105	100	101	99
Average length of time at Mooseheart (yrs. and mos.)	1—2	1—0	6—4	1—7	1—7	3—8
Average grade in school	2.0	5.3	8.9	2.0	5.4	9.2
						(+3 "Special Help" cases)

are probably not a geographically selected group, they do come predominantly from particular social class groupings, probably upper lower and lower middle class. At Mooseheart these children live in an environment much the same for each in so far as food, housing, social code and expectations are concerned, so their social class standards become more homogeneous as the children live longer at Mooseheart. On this account, the Inventories from the younger children who have been here a shorter time are probably more representative of children in this country than are the Inventories of children who have been at Mooseheart for several years.

DATA AND PROCEDURE

Responses to the Wishes and Fears Inventory were obtained during a personal interview with each child after rapport had been gained. While the form of the question varied, depending upon the interview situation, replies to questions on each of these items were requested:

3 Wishes
2 Positive Identifications
2 Negative Identifications
2 Desired Activities
2 Undesired Activities
2 Changes Desired (in oneself)
2 Fears
1 Earliest Recollection

After the Inventories for this study were chosen, the responses were categorized and then tallied to yield the frequency of each type of response. The initial categories were combined into more comprehensive categories and frequencies were totaled for these. "Miscellaneous" and "No Response" categories were included under each section. The percentage that each of the obtained frequencies represented of the total number of adequate responses was used as the basis for statistical comparison. Thus, the number of "No Response" items did not affect the percentages used in calculation. In most of the sections, the boys, especially the older boys, gave "No Response" to the interview questions more often than did the girls. If these items had been used, they would have decreased the percentages of responses of the boys more than those of the girls and thus have slanted the results.

Significant differences between percentages were calculated and appear in Table II. Percentages were based on the total number of responses in a given category and it is possible that one child may have made two or three responses in a single category. It was desirable to use all of the data on this group, but in the computation of significant differences, the number of children in each group was used as the population size.

Since this is a preliminary study, no check on the reliability of the classification was made. The results of this study agree rather well with the studies mentioned in the text and in the bibliography and with the expected attitudes and behavior of children at these ages.

Results

A summary of the significant differences is presented in Table II. Under "Wishes," the wish "To Have Material Things" was more frequently mentioned by the 7- and 8-year-olds than by the 15- and 16-year-olds. This difference was significant at the 1% level of confidence. The wish "To Be Someone" was mentioned significantly (5% level) more often by the 15- and 16-year-olds than by the 7- and 8-year-old children. The last two columns indicate the percentage of responses by boys and by girls in each category and any significant differences between these percentages.

The changes in "Wishes" with change in age has been developed more fully by Jersild and others who report that "There is a marked decline with

TABLE II

SIGNIFICANT AGE AND SEX DIFFERENCES IN A STUDY OF THE WISHES AND FEARS INVENTORY

Categories	PERCENTAGE OF RESPONSES				
	7 & 8	11 & 12	15 & 16	Boys	Girls
Wishes					
To Have Material Things ...	88.4	48.3	23.2[2]	59.3	52.5
To Be Someone	0.	16.7	21.4[1]	12.8	8.1
For Toys	47.8	18.3	3.6[2]	26.7	23.2
For Vocation	0.	5.0	14.2[1]	7.0	5.1
Positive Identifications					
Societal Roles	27.5	70.0[3]	58.6[1]	56.3	47.5
Unrealistic Roles	17.5	5.0	0. [1]	10.4	6.6
Movie and Radio Persons	7.5	30.0[1]	31.0[1]	18.8	24.6
Adults in Family	37.5	17.5	10.3[1]	14.6	29.5
Age-mates	7.5	5.0	20.7	2.1	16.4[1]
Types: II. Well Known Persons	12.1	27.5	43.8[2]	37.0	20.3
III. Family	51.5	20.0[1]	12.5[2]	17.4	35.6
IV. Personally Known ..	3.0	2.5	18.8	0.	13.6[1]
Negative Identifications					
Societal Roles	14.3	50.0[3]	41.9[1]	39.5	32.6
Unrealistic Roles	32.1	13.3	0. [2]	20.9	8.7
National Enemy	0.	26.7[3]	9.7	16.3	8.7
Imaginary	21.4	13.3	0. [1]	14.0	8.7
Grouchy, Unnatural	0.	0.	22.6[2]	7.0	8.7
Types: I. General Roles	31.6	61.5[3]	56.3	55.9	48.8
II. Well Known Persons	0.	30.8	31.3[2]	29.4	18.6
IV. Personally Known ..	57.9	7.7[3]	12.5[2]	14.7	27.9
Desired Activities					
Sports	13.6	47.8[3]	41.3	42.6	26.5
Artistic Vocations	0.	15.2[1]	13.0	4.4	14.7
Undesired Activities					
Personal Characteristics	18.8	19.4	10.3	25.6[1]	8.2
Household Tasks	34.4	3.2[3]	10.3[1]	9.3	22.4
Changes Desired					
Physical Self	8.7	50.0[3]	44.8[2]	29.7	41.5
Emotional Self	4.3	23.1	24.1[1]	16.2	19.5
Be Somebody	56.5	15.4	3.4[2]	29.7	17.1
Be Pretty, Good Looking	4.3	7.7	10.3	0.	14.6[1]
Be Good, Stay Out of Trouble	4.3	7.7	6.9	13.5[1]	0.
Religious Persons	17.4	0. [1]	0. [1]	8.1	2.4
Fears					
Physical Harm	0.	20.0[1]	16.7	10.4	11.1
Domestic Animals	14.3	0. [1]	3.3	2.1	11.1
Earliest Recollections					
Positive Feeling Tone	50.0	9.5[3]	22.7	20.0	32.3
Negative Feeling Tone	44.4	85.7[3]	63.6	66.7	58.1
Hurt, Frightened	16.7	52.4[1]	27.3	43.3	22.6
Was Wrong	5.6	4.8	22.7	3.3	19.4[1]
Father Mentioned	27.3	30.8	20.0	10.5	40.0[1]

[1] Indicates a difference significant at the 5% level.

[2] Indicates that the difference between that percentage and the percentage of responses in the 7- and 8-year column is significant at the 1% level.

[3] Indicates a significant difference at the 1% level between this column and the 7- and 8-year column.

There were no significant differences between the 11- and 12-year and the 15- and 16-year columns.

age in wishes for specific material objects and possessions" (4). The decline in the desire for material things and the increasing desire to be someone seem to be related to the child's changing concept of valuable and status-giving characteristics. By the younger child, a child with many possessions is highly regarded; the older child, judging from the significantly increased frequency of mention, feels more keenly than the younger one the importance of establishing his place in society.

TABLE III

TYPES OF IDENTIFICATIONS ON THE WISHES AND FEARS INVENTORY

	Type I *General Roles*	Type II *Well Known Persons*	Type III *Family*	Type IV *Personally Known*	Type V *Self*	Total No. of Answers
AGE DIFFERENCES						
Positive Identifications						
7 & 8	33.3	12.1	51.5	3.0	0.	33
11 & 12	50.0	27.5	20.0[1]	2.5	0.	40
15 & 16	15.6	43.8[2]	12.5[2]	18.8	9.4	32
Negative Identifications						
7 & 8	31.6	0.	10.5	57.9	...	19
11 & 12	61.5[3]	30.8[3]	0.	7.7[3]	...	26
15 & 16	56.3	31.3[2]	0.	12.5[2]	...	32
SEX DIFFERENCES						
Positive Identifications						
Boys	41.3	37.0	17.4	0.	4.3	46
Girls	28.8	20.3	35.6	13.6[1]	1.7	59
Negative Identifications						
Boys	55.9	29.4	0.	14.7	...	34
Girls	48.8	18.6	4.7	27.9	...	43

[1] Indicates a difference significant at the 5% level.

[2] Indicates that the difference between this percentage and the percentage of responses in the 7- and 8-year row is significant at the 1% level.

[3] Indicates a significant difference at the 1% level between this row and the 7- and 8-year row.

When these 7- and 8-year-old children were asked whom they would desire to be like, they most often named someone in their family as is shown in Table III. If asked whom they would not desire to be like, they named someone they knew who was outside the family. The 11- and 12-year-olds showed greater interest in being like persons with certain roles in our society such as an athlete, a war bride or a movie star, than in being like family members. This desire to be like somebody who has a certain role

changes slightly with age, for the 15- and 16-year-old children more often chose to emulate a specific well-known person who represents a well-recognized position in our society. This is a reflection of the "hero worship" of adolescence. "Much of the hero worship of this period [early adolescence] is an attempt by the younger person to grasp a concrete picture of the personality he dreams of for himself. His worship of the hero is, in many instances, only a worship of that which he hopes for or longs for in himself. He sees in the older person of his own sex a picture which clarifies what he thinks, at least at the time, he needs to fulfill in himself" (1). In choosing their ideal persons from outside the family and in choosing more personally known models from outside the family circle than from inside, the older children showed their independence of family ties as well as their acquaintance with more people. They followed the socially sanctioned behavior of not showing hostility toward family members for they did not mention dislike of being like family members.

If Types III and IV in both positive and negative identifications are combined, it will be noted that the 7- and 8-year-olds mention most frequently those persons with whom they are most familiar. Older children, because they are more conscious of the variety of roles or types of persons with whom they may like or dislike identifying, reported fewer identifications with those personally known to them.

Boys and girls tend to pick different types of models for themselves as the same table shows. Although most of the individual differences between percentages are not significant, the trends are quite clearly shown. In each case girls, more than boys, identify with people they know personally, either inside or outside the family circle. Boys more than girls identify with general societal roles or with well-known persons epitomizing these roles. As is shown in Table II, girls identify more often with peers than do boys. Jersild and others have noted that "Girls show more concern about social relationships than do boys. ... Boys on the other hand show somewhat more concern about objects and activities, with less emphasis upon personal relationships between people" (4). Girls in this study showed greater identification with those people in face-to-face contacts where social relationships are of prime importance while the boys were more interested in people who had important roles and status in our society.

The changes with age in identification with, or concern about, imaginary characters or animals are shown in Table IV. The decreasing importance of such unrealistic characters to the maturing child is unmistakably clear. "It is at the elementary school age that facts ordinarily come to replace the more childlike phases of the imagination ..." (1), and models for behavior become increasingly realistic and similar to the child's future roles. In the younger children, unrealistic identifications would seem to have less significance as an indication of a rich fantasy life and/or withdrawal tendencies than would be the case with older children.

As would be expected, the older children are more interested than the

younger ones in sports and artistic vocations as is shown in Table II. The dislike of household tasks by the younger children probably arises from their introduction to these duties in the halls at Mooseheart at about the time they begin school. The older children seem to accept these regular tasks more readily for they do not mention them as often.

Younger children choose to "be somebody," usually an adult, more often than do the older children, who see the possibilities or desirability of chang-

TABLE IV

CONCERN WITH UNREALISTIC CHARACTERS IN THE WISHES AND FEARS INVENTORY

Inventory Items	PERCENTAGE OF RESPONSES *Ages* 7 & 8	*Ages* 11 & 12	*Ages* 15 & 16
Category: "Imaginary Characters"			
Positive Identification	42 5	17.5	10.3
Negative Identification	21.4	13.0	0.
Fears	11 9	10.3	0.
Category: "Animals"			
Positive Identification	7.5	0.	0.
Negative Identification	10.7	0.	0.

ing something about their own physical characteristics or their emotional attitudes and behavior. While this choice to "Be Somebody" under "Changes Desired" seems the opposite of the age trend noted under "Wishes," these two categories are different. The younger child mentions his desire to be an adult or a family member under "Changes Desired"; the older child under "Wishes" mentions his desire to be somebody in a vocation, in sports or in education. The younger children have only a very general idea of how they would like to be changed, while older children know specific ways in which they would like to be different. This trend and the age trend in types of identifications is similar to the general development of the child from generalized to more specific attitudes and behavior and from limited awareness to much greater awareness of the variety of alternatives open to him.

The desire of the younger child to become like a religious person such as Jesus or God is a way of expressing his desire to be a good person as his parents and others want him to be. If he is so very good, he feels that his parents will love him more and he will feel wanted and worth while as he needs to feel.

Jersild and others in their study of fears report that "Older children show a greater frequency of fears of bodily injury... Younger children

show fear of animals a great deal more frequently than do older ones" (4). These reported trends are similar to those trends shown here under "physical harm" and the mention of fear of domestic animals. Only the decrease with age in the fear of domestic animals is shown in the table because other age differences in fears of other types of animals were not significant.

The earliest recollections of the children interviewed showed definite changes in feeling tone with age as Table V indicates. Half of the recol-

TABLE V

EARLIEST RECOLLECTIONS ON THE WISHES AND FEARS INVENTORY

	PERCENTAGE OF RESPONSES			
Category	*Age* 7 & 8	*Age* 11 & 12	*Age* 15 & 16	Total
Negative Feeling	44.4	85.7	63.6	62.3
Positive Feeling	50.0	9.5	22.7	26.2
Undetermined Valence	5.6	3.8	13.7	11.5
	100.	100	100.	100

lections of the 7- and 8-year-old children had pleasant feeling tones such as "playing with the boys and girls at school," "let my sister hold me," "got a play tractor for Christmas." Nearly half of the recollections of these children were concerned with unhappy feelings like "I cried because I wanted my mommy." The older children remembered being hurt or scared or otherwise unhappy much more often than they remembered pleasant experiences. It may be that *specific* unhappy experiences, disappointments, hurts and frustrations of early childhood made a more lasting impression on the minds and feelings of these children than did specific instances of happiness and pleasantness. When children's feelings are studied over a period of time rather than for specific instances, "... it would appear that pleasant, or at least neutral tones predominate greatly over unpleasant states in normal children, as seems also to be true of normal adults" (1). Since, however, only 61 recollections are included in this sample the results are only suggestive. The recollection of being hurt or frightened follows the same age trend as the fear of physical harm mentioned above, and probably arises from the same attitudes.

The differences between boys and girls that appear in Table II support the hypothesis that girls show more concern about social relationships than do boys. Greater identification by the girls with their age-mates and personally known individuals suggest the greater importance of face-to-face relationships to girls. Their desire to be pretty and good looking stresses again the importance to them of being found acceptable in inter-

personal relationships. The recollection of being wrong or punished indicates also their concern about meeting the expectations of others and of being accepted therefor. Boys seem more concerned than do girls with being good and staying out of trouble. With boys, although they too are trying to meet the expectations of others, the emphasis is upon curbing their activities in order to be accepted or to escape punishment. This may be related to the greater opportunity and freedom boys are permitted in expressing their aggressive feelings and the necessity for curbing these desires when their aggressions are socially disapproved. Girls, because of their lack of approved aggressive outlets such as fighting, may inhibit themselves to such an extent that these aggressive impulses are not expressed and they do not worry about keeping out of trouble as much as boys do.

Summary and Conclusions

The replies of 72 children at Mooseheart on an Inventory of wishes, identifications, desired and undesired activities, changes desired, fears, and earliest recollections were categorized. The children represented a normal range of intelligence and comprised three age groups, 7- and 8-year-olds, 11- and 12-year-olds, and 15- and 16-year-olds. Significant differences and outstanding trends between age groups and sexes were discussed. The following results were obtained:

1. Wishes for material possessions decreased with age while wishes to be someone in a vocation, etc., increased.

2. Younger children identified positively with family members, negatively with acquaintances outside their families. Pre-adolescents identified most often with general societal roles while adolescents identified more often than pre-adolescents with well-known persons epitomizing roles or status in our society.

3. Girls identified more than did boys with persons they knew; boys identified more with general societal roles and well-known personages.

4. Older children showed fewer unrealistic identifications than did younger ones.

5. Older children mentioned more specific ways in which they would like to be changed; younger children gave more general responses.

6. Younger children showed more fear of animals than did older children, who were more afraid of physical harm to themselves.

7. Older children mentioned more unpleasant and unhappy experiences than did younger children.

8. Age trends seem most closely related to increasing awareness of the environment by the child and changes from general to more specific attitudes. Girls seemed more interested than boys in social relationships, especially face-to-face contacts, while boys were more interested than girls in activities and their societal roles.

Bibliography

1. Breckenridge, M. E. and Vincent, E. L. *Child Development,* Philadelphia: W. B. Saunders, Co., 1943.
2. Carmichael, Leonard (Ed.) *Manual of Child Psychology,* New York: John Wiley and Sons, Inc., 1946.
3. Jersild, A. T. and Holmes, F. B. Children's Fears. *Child Develpm. Monogr.,* 1935a., No. 20.
4. Jersild, A. T., Markey, F. V. and Jersild, C. L. Children's fears, dreams, wishes, daydreams, likes, dislikes, pleasant and unpleasant memories. *Child Develpm. Monogr.,* 1933, No. 12.
5. Speer, George S. Wishes, fears, interests, and identifications of delinquent boys. *Child Develpm.,* 1937, 8, 289-294.
6. Speer, George S. Oral and Written Wishes of Rural and City School Children. *Child Develpm.,* 1939, 10, 151-155.
7. Washburne, John N. The impulsions of adolescents as revealed by written wishes. *J. juv. Res.,* 1932, 16, 193-213.

THE USE OF COLOR IN THE FINGER PAINTINGS OF YOUNG CHILDREN

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Finger painting in recent years has been used clinically as a diagnostic and therapeutic measure. Napoli (3, 4) defines and describes the activity as a clinical instrument that contributes to the appraisal, study and understanding of human personality. He finds characteristic syndromes for schizophrenic and paranoid personalities, and states that "certain personality types definitely show affinity for certain color choices and color combinations," and that "in a painting series an individual confirms his color choices by the predomination of a particular color throughout the series." He suggests the value of finger painting for age groups where speech is not yet fully developed and emphasizes that all aspects of the activity, the behavior performance, the painting procedure and the verbalization need to be studied together. Wolff (11) observes that finger painting gives indications of the preschool child's personality patterns through such aspects as the choice and handling of the colors, characteristic movement patterns, and respect for the limits of the paper. Arlow and Kadis (1) describe the use of finger painting as a form of projective play, and present a number of case reports, showing how the habits and techniques employed reflect the personality of the painter when viewed within the context of the total therapeutic situation. They observe that children under five use finger painting as an emotional outlet, children four to ten prefer several colors while older children use a single color centering their interest on form and content. Themes of hostility and aggression are executed in brown and black, while bright colors are chosen for happy scenes. Failure to cover the page indicates an inhibited or frightened individual, while inability to limit one's self to the page shows aggression and insufficient inhibition. Phillips and Stromberg (7) conclude that the use of color and the motions involved in finger painting offer significant evidence for identifying maladjusted and potentially delinquent adolescents. Blum and Dragositz (2) found age differences in the colors preferred and movements made. Green was the preferred color for the first graders and sixth grade boys, but red and blue held high positions. Blue was the first choice of the sixth grade girls with green second. Rubbing, pressing and drawing were the most common motions. There was an increase with age in the use of stroking movements.

The purpose of the present study was to investigate the use of color in the finger painting of three- and four-year-old children, first, to determine whether or not at this early age there is a consistency in color selection throughout a series of paintings; second, to determine if a series of paintings made by individual children are sufficiently similar to be recognized as the product of that individual and if so, the bases for such similarity; and

third, to compare the finger paintings of a group of preschool children living at home with their families, with those of a similar age group living in an institution.

Method and Reliability

Interpreting finished finger paintings presents a certain difficulty as the first colors and patterns are often eradicated by later ones, leaving little trace for subsequent analysis. For this reason, a preliminary investigation was conducted in order to work out reliable methods for recording the colors used during the painting procedure and for evaluating the colors in the finished paintings. Twenty nursery school children served as subjects. A separate room with a low table close to a group of three north windows was used, and the finger painting conducted only on clear, bright days. The materials included white glazed paper, a cooked starch mixture and powdered tempera paints in the hues red, yellow, green, blue and black, which were placed in clear glass salt shakers, one color in each.

While most investigators have used the Shaw finger paints, the method used in this study has certain advantages for small children. The colors are clearly visible through the glass and are not easily contaminated. The paint is readily manipulated, the subject merely shaking on the desired amount and color, the materials are inexpensive, easily prepared and stored.

The shakers of paint were placed on the table in a row before the subject and the order of the colors was changed for each painting according to a predetermined plan, to indicate whether the child was really choosing a color, or merely taking the first one in the row.[1] A spoonful of the starch mixture was placed on the moistened paper. The child was told that he might use any colors he desired and was permitted to paint as long as he wished.

Since finger painting usually proceeds at a rapid pace, a record form was devised to use with each subject making it possible, by a system of checking, to record each use of a color during the execution of every painting, and the manipulation of the paint on the page, i.e., whether it was kept separate or mingled and mixed. Additional information included the child's name, the date, the serial number of the painting (his 1st, 2nd, 3rd or 4th) and the order of the colors arranged on the table. Space was provided for any comments made by the child. Two persons simultaneously and independently observed each of the twenty children during the making of one painting. The agreement between the tallies on the records of these two observers for the subjects' choices of colors was ninety-nine per cent, and ninety-five per cent for the effects obtained by the manipulation of the paint, using the formula

[1] Smith (9) in a study of the relation of the position of the color to the choice of color in the easel painting of preschool children, reports that in 60 per cent of the paintings the color on the extreme right was chosen first, and eight of her thirty-two subjects throughout the school year chose the colors in the exact order of presentation.

$$\frac{2 \times \text{the number of agreements}}{\text{Total of observer A} + \text{total of observer B.}}$$

A second record form was developed for the evaluation of the completed paintings, and included the following items: *predominant hue, predominant value,* (listed as "light," "middle" or "dark"), the *hues visible,* and the *final effect* of *manipulation,* i.e., a single color, the colors kept separate, or mingled and mixed. Additional space was provided for a description of any representations and other characteristics of the painting, including the texture of the paint, and the coverage of the paper. Each painting was evaluated separately under the same lighting conditions in which the painting procedure took place. It was taped flat against the wall on a background of white paper, below a set of standard colored papers in the hues red, yellow, blue, green, violet, orange, brown and gray, with each hue in three values, light, middle and dark. These samples were used as a guide by which to judge the predominant hue and predominant value of each painting and were an important factor in establishing adequate reliability. The investigator, seated at a distance of eight feet from the painting, evaluated each painting. At this distance it was found that the more subtle blendings of colors and values which were extremely difficult to identify and led to lowered reliability were eliminated, while the more prominently used colors and values were in turn more reliably identified.

In establishing the reliability of this method of evaluating the finished paintings, each of the twenty paintings used previously in establishing the reliability of color choice was evaluated independently by two judges. As before, percentages of agreement on individual items were obtained. Ninety per cent agreement was found between the records of these two persons for predominant hue; eighty-five per cent for predominant value and for hues visible; and one hundred per cent for the final effects of manipulation. One judge re-evaluated the set of paintings seven months later and the agreement with her previous evaluation dropped to eighty-five per cent for predominant hue, and eighty-three per cent for hues visible. The agreement for predominant value and the final effect of manipulation remained the same, eighty-five per cent and one hundred per cent, respectively.

Final Investigation

With the procedures and record forms developed and adequate reliability established, the main portion of the investigation was carried on after a period of seven months and during the following school year.

There were two groups of subjects. Group A consisted of twenty children, ten boys and ten girls ranging in age from 2 years 8 months, to 4 years 6 months, with a mean age of 3 years 8 months. These children came from families in the upper socio-economic levels and attended the university nursery school every morning. Group B consisted of eleven children,

six boys and five girls, who lived in a "Home for Children," and who attended the same nursery school one afternoon each week. These children were committed to the home because their families were incompetent to care for them. Some were born out of wedlock, others were neglected or deserted by their parents, and each had a tragic case history. Their age range was 2 years 8 months to 4 years 2 months, with a mean age of 3 years 4 months.

A number of the first group of twenty had participated in the preliminary investigation and were familiar with the finger painting procedure. With Group B and the "new" children in Group A, before making any records, a demonstration and one or more practice periods were given until the children were well acquainted with the observer and the activity. The children in Group A painted in the same room and followed the same procedure as in the preliminary study, except that a single observer was present. Each child was observed on two different days and during each period he completed two paintings. A mean length of nineteen days elapsed between the two painting sessions. The children were asked if they would like to finger paint and several volunteers were always ready each day. No child was urged to participate if he showed the slightest reluctance.

With Group B the situation and procedure were duplicated close to three north windows in the end of one of the play rooms and partially screened off to avoid distractions. These children painted whenever the activity appealed to them. A total of forty paintings were collected, twenty in sets of two made the same day and twenty single paintings. A series of four paintings was completed by eight children, two subjects made only three and one child just two. A mean length of fifty-three days elapsed between the initial and final paintings.

To determine whether an individual child's paintings were sufficiently similar to be recognized as his products, the eighty paintings of Group A were numbered at random for identification, and hung in random order on the walls of the north room used for painting. Then eight judges,[2] none of whom had any knowledge concerning which children had painted the "pictures" were asked to match by number the paintings which they believed to have been made by the same child, listing four together if possible, and if not, any three or any pairs. Later the forty paintings of Group B were hung, and the matching procedure repeated. Instructions were given to work independently and to list the number of each painting only once. This matching was done under the same lighting conditions as the painting and the evaluation. The judges were permitted to examine the paintings as closely as they wished.

[2] The judges were senior or graduate students all of whom had taken several courses in psychology and child development, including nursery school observation, and who had personal experience with finger painting. They were acquainted with its diagnostic and therapeutic possibilities, but had no clinical experience with finger painting as a projective technique.

Finally the paintings of Group A were hung again. This time each child's four paintings were together and identified with his name, and seven additional and similarly qualified judges listed any features that, to them, appeared to make the paintings of each child similar or unique. This information was used later in determining the bases for successful matching by the other judges.

TABLE I

GROUP A

Determination of Differences in Patterns of Color Selection in Paintings 1 and 2; in Paintings 3 and 4; and Among Paintings 1, 2, 3 and 4, as Indicated by Chi Square and Levels of Probability.

Subjects	*Paintings* 1 *and* 2		*Paintings* 3 *and* 4		*Paintings* 1, 2, 3, *and* 4	
	Chi^2	Prob.	Chi^2	Prob.	Chi^2	Prob.
Ann	2.315	.50–.70	4.585	.30–.50	10.684	.50–.70
Bud	5.263	.95–.98	5.250	.95–.98	12.704	.30–.50
Don	3.137	.50–.70	2.834	.50–.70	7.762	.80–.90
Doris	.207	.70–.80	1.648	.80–.90	4.734	.95–.99
Elise	.821	.90–.95	7.346	.10–.20	11.120	.50–.70
Errol	.277	> .99	.245	> .99	.981	> .99
Helena	5.237	.20–.30	4.842	.30–.50	12.065	.30–.50
Irene	.000	> .99	4.370	.30–.50	.300	> .99
Jack	28.095	< .01	0.390	.98–.99	37.338	< .01
Jerome	.668	.95–.98	0.000	> .99	1.416	> .99
Jim	4.408	.30–.50	7.101	.10–.20	14.516	.20–.30
Joel	6.458	.10–.20	12.548	.01–.02	47.849	< .01
Kandy	19.180	< .01	.883	.90–.95	24.200	.01–.02
Katie	.668	.95–.98	2.031	.70–.80	3.914	.98–.99
Lynn	.223	> .99	.205	> .99	1.184	> .99
Mary	.810	.90–.95	1.603	.80–.90	2.590	> .99
Mickey	1.118	.80–.90	1.960	.70–.80	4.137	.98–.99
Patsy	14.226	< .01	2.059	.70–.80	19.764	.05–.10
Richard	3.317	.50–.70	1.666	.70–.80	8 444	.70–.80
Sam	.294	> .99	.979	.90–.95	1.748	> .99

RESULTS

Use of Color During the Painting Procedure

It was desired to test the assumption that a child will use the same pattern of color choices throughout a series of finger paintings. As a technique for determining quantitatively any existing differences in the choices of

colors between paintings 1 and 2; between 3 and 4; and among paintings 1, 2, 3 and 4, the chi square test was used. Thus, three chi square values were obtained for each subject and also three levels of probability. For the children in Group B, who did not necessarily paint two sets of two paintings each, only the possible differences in the selection of the colors for the total series of paintings were determined.

TABLE II

GROUP B

Determination of Differences in Patterns of Color Selection in the Total Number of Paintings as Indicated by Chi Square and Levels of Probability.

	Paintings 1, 2, 3, *and* 4 (d.f.12)		*Paintings* 1, 2, *and* 3 (d.f.8)		*Paintings* 1 *and* 2 (d.f.4)	
Subjects	Chi^2	Prob.	Chi^2	Prob.	Chi^2	Prob.
Bess	5.886	.90–.95	.....	.....	.....	.....
Carolyn	10.102	.50–.70	.....	.....	.....	.....
George	.....	.....	.....	.....	1.514	.80–.90
Harry	9.201	.50–.70	.....	.....	.....	.....
Joyce	20.190	.05–.10	.....	.....	.....	.....
Katherine	5.829	.90–.95	.....	.....	.....	.....
Kendall	.....	.....	5.249	.70–.80	.....	.....
Nick	7.745	.80–.90	.....	.....	.....	.....
Robert	8.540	.70–.80	.....	.....	.....	.....
Sally	.....	.....	13.759	.05–.10	.....	.....
Virgil	15.474	.20–.30	.....	.....	.....	.....

The chi square test indicates the degree to which the number of times each color actually selected in a painting diverges from the number of times it might be expected to be selected, based on the pattern of colors used, as shown in the total selections of colors by the individual. The assumption is made in determining the chi square values that the child will use the same pattern of color selections from one painting to another. If this assumption is true, the ratio or proportion of each color to the other colors in one particular painting should be the same as the ratio of that color to the other colors in all other paintings made by that particular child.

A study of the chi square values (Tables I and II) indicates that for twenty-seven children the differences in color selection did not approach the point of statistical significance (five per cent level). With some subjects, for example, Errol, the patterns were very similar. For four children, Jack,

Joel, Patsy and Kandy, all in Group A, the patterns of color selection were sufficiently different to be statistically significant. However, none of these four showed a significant value between paintings 1 and 2 and also between 3 and 4. In order to determine the nature of this color similarity in the paintings of the large majority of the children, the original record of each child's use of color during each painting session was scrutinized. It became evident that the similarity was characterized by an interest in all colors, rather than a distinct and continued preference for any one color. For the four children with significant chi square values, the differences were caused either by the use of a single color in a particular painting or by a color "jag" or temporary interest in a color that lasted through one painting.

Careful study of the number and order of each child's choice of colors showed that the subjects could be grouped into three classes, according to their pattern of color use. *Following the order in which the colors were placed on the table,* was practiced by seven children, six from the "family" and one from the "Children's Home" group. The position of the colors on the table was quite a factor in a good many of the paintings. Of the total number of 120, in 61.6 per cent the first color used was the one on the extreme left or right, and in 41.3 per cent of the paintings, the color on the left or right was chosen first and followed by the color next to it. *An order of their own choice,* but including all of the colors in each painting, with an occasional omission of one or two, was the method practiced by fourteen children, seven from each group. *The use of a single color for a painting, or a prolonged interest in one color* (used it five or more consecutive times) was the third pattern, used by nine of the subjects, seven from Group A and two from Group B. Some of these color "jags" were very pronounced. Jack used black 23 times in one painting, Joel used red 12 times, Kandy, blue 14 times, and Patsy, black 28 times, giving distinctive characteristics to their paintings, and highly significant chi square values. However, these color "jags" were not confined to a particular color. For example, Joel, in his first painting, used red, yellow and black each several times, and in his second painting green was used repeatedly, in his third, black, and in his fourth, he used yellow exclusively.

No child used the same color the greatest number of times in four paintings or even in three. However, ten subjects did show a slight preference for the same color in two paintings. Because the color a subject selects first is often considered his preferred color, a summary was made of the number of times each subject selected a particular color as his initial choice. No subject preferred one particular color as his initial choice in all four paintings. Seven subjects used the same color initially in three paintings and fifteen in two. This interest in all of the colors is further substantiated when the color choices of all of the children are totaled. While Group A used black more than any other color and Group B used red, when tested statistically by analysis of variance, no significant color preferences were evident for either of the two groups of children.

One difference was apparent between the two groups in their use of the colors. The "family" group used them much more freely than did the group from the Children's Home, an average of 14.19 color uses per painting as compared with 7.27. The difference between these means proved to be statistically significant at the one per cent level.

Evaluation of the Completed Paintings

Hues Visible. Although only five hues were offered, it was possible to obtain gray, and by blending, orange, violet and brown. The completed paintings in general had a multi-color effect, the number of hues visible ranging from one to eight, with an average of 3.69. A single hue was used in eight paintings.

Predominant Hue. Of the 120 paintings 35.7 per cent were judged to be without any predominant hue. No subject was found to have four paintings in which the same hue was predominant. Four subjects had the same predominant hue in three paintings, and nine in two. The others showed no consistency in any of their paintings. There was a tendency for red to predominate more in the paintings of Group B than in those of Group A, while the reverse was true of violet, black and yellow. Differences were negligible for the other colors. Black frequently obscured the other hues, and the various pigments neutralized each other, with a resulting gray or drab effect. For example, while Ann was painting, after using all of the hues several times she added yellow twice, remarking "I need a lot. It's only black. It never turns." These young children obviously experimenting and playing with the paint, had little control over the final color effect.

Predominant Brightness or Value. A greater degree of consistency was found in this aspect than in hue, as nine of the thirty-one subjects had all four of their paintings of the same value and in each case it was "dark," while seven others showed consistency of values in three of their paintings. When a weight of "3" was assigned to dark, "2" to middle and "1" to light, the average value was 2.36 and practically no difference existed between the "family" and the "Children's Home" groups. Of the 120 paintings 52.4 per cent were "dark," 25.8 per cent "middle" and 20 per cent "light." This predominance of darkness may be explained by the inclusion of black and exclusion of white paint in the pigments offered. If a child enjoyed using all of the colors in quantity, including black, it would have been difficult to have obtained a value other than dark.

Placement on the Paper. The subjects showed the greatest consistency in this feature of their paintings, as, throughout their series, three children covered all of the paper, eleven all but a small area, and two restricted the paint to a portion of the page. The other fifteen children used all methods. The group from the Children's Home had a greater proportion of restricted paintings than did the family group, but this difference did not prove to

be statistically significant. Of the 120 paintings, 23 per cent entirely covered the page, 55 per cent covered the paper except for a small area and 21.6 per cent were restricted to a portion of the page.

Manipulation of the Paint, Markings and Representation. Two children each completed one painting in which an attempt was made to keep the colors separate. In all other cases the paint was mingled and mixed as the children spread it over the paper. The whole hand was used for the most part, although a random movement of the index or all of the fingers together appeared occasionally. This was apparent in all four products of one child and in three of two children. Markings occurred infrequently and consisted of scratching, and purposeful or accidental marks made with the bottom of the paint shaker. Some holes were worn through by hard rubbing. Only three subjects, all in Group A, attempted any pictorial representation. Ann drew the "sun" and "big bright eyes" which she later obliterated; Mary a "pumpkin," and Bud a "fire boat" and "fire hose." No similar markings or representations were purposely repeated in more than two paintings.

Matching of the Completed Paintings

It was thought that some of the significant detail might be lost in the objective evaluation of the paintings. In order to see whether factors were present that characterized each child's work, yet did not lend themselves to objective measures, eight judges attempted to match the paintings into sets of four, three or two, using the method described earlier.

Number of Correct Matchings. Of the 80 paintings made by the twenty children in Group A, two judges each matched correctly one set of four paintings, and five judges were each able to match one set of three. Much greater success was had in the correct placing together of two paintings out of each child's set, such pairs matched averaged 6.75 per judge, ranging from four to ten.

Of the 40 paintings made by the eleven subjects in Group B, no judge was able to match a set of four, but four judges each correctly placed a set of three. The judges averaged 4.75 correct pairs, with a range from four to eight.

Equal success was achieved in matching the pairs of paintings made on the same day and on different days.

Bases for Correct Matchings. Considering both groups of subjects, there was a total of 55 sets or pairs of paintings that were correctly matched by one or more judges. These included 75 of the 120 paintings in various combinations. For example, two judges correctly matched Ann's second and fourth paintings and one other judge her second and third, making two "matchings" of her work. In order to determine the bases for these correct matchings, the sets of four, three or two paintings with which any judge had success were carefully examined, together with both record sheets

completed earlier and the observations of the seven judges who examined each child's identified set of paintings for similar or unique features.

Hue. In only ten of the correct matchings, involving the work of seven children, was the predominant hue a similar one or were any colors sufficiently conspicuous or unique to serve as clues for identification. This indicates that hue is a relatively minor factor in the individuality of young children's finger painting.

Brightness or Value. The value was similar in thirty-six of the correct matchings, the work of twenty-two children. It will be recalled that although the majority of children were quite consistent in this respect, most of the paintings were "dark" and consequently not distinctive. A scrutiny of the correct matchings shows that the similar value became an important identifying factor when it was unusual, as "very light" or "very dark."

Covering of the Paper. The area covered was previously recorded roughly as "whole page covered," "covered except for a small area," and "restricted to a portion of the page," and thirty-six correct matchings, involving twenty-four children, proved similar in this respect. A closer examination revealed that in eight of these matched sets or pairs, identical areas of the paper remained uncovered. It is probable that a more objective method of recording the manner in which the paint is placed on the paper such as used by Napoli (4) would show that this feature contributes a good deal to whatever individuality exists in the finger paintings of very young children.

Texture of the Paint. Unusually thin or thick paint, resulting from the amount of tempera powder added to the starch paste, or the presence of dry surface paint due to incomplete manipulation proved to be similar features in thirty-one of the matchings, the work of seventeen children. The use of thin paint was rare and hence distinctive. Thick paint was fairly common, especially in Group A, but nevertheless proved a contributing factor to correct matching by differentiating otherwise similarly colored or placed paintings.

Movements. The use of the fingers, patting with the whole hand, the origin and direction of the movements, the restriction of each hand to one-half of the paper, were noted as characteristic features that were unquestionably a factor in the successes of the judges. Such similarities appeared in thirty-two correct matchings, the work of seventeen children.

Markings, Designs and Representations. Although this feature occurred very seldom, it was unique when used. One pair had a "fire boat and hose" on each, another similar scratching marks and a third covered with a design made with the shaker base.

Cases with Greatest Matching Success. The judges had much greater success in matching the work of some children than of others. In Group A, all eight judges correctly matched a pair each made by Doris and Katie. Doris' were the ones previously mentioned which were decorated with a

design purposely made with the shaker base, and in addition were both light violet in color, completely covering the page. Mickey made accidental shaker marks on his and a few judges placed one or two of them with Doris' calling them a set of four. Since Mickey's paint was thick, finger movements very evident, and the shaker marks "messy," most judges differentiated the work of the two children. Katie's first two were covered with prints made by patting her outspread hands all over the paper which she had previously covered with a multicolored paint of middle value. No other child did this. Katie and Doris were able to identify these pairs of paintings six months after completion, although they had not seen them in the meantime.[3]

Don's paintings were each a restricted oval mass of thick paint, with red-violet predominating. One judge matched his complete set. Numbers 1 and 2 were in an identical area of the paper, and correctly matched by one judge; 3 and 4 were in another identical area and correctly matched by four judges. Don's were frequently confused with two of Sam's, these six being the only restricted ovals in the set of eighty in Group A.

Patsy's numbers 2, 3, and 4 were correctly matched by three judges, and two additional judges succeeded in matching two of the three. These paintings were completely covered with very thick, almost black paint. Other children completely covered their paper, many paintings were thick with paint, but Patsy's were the only black ones so painted.

In Group B, every judge matched either a pair or a set of three of each of Katherine's, Nick's and Virgil's paintings. Katherine's were easily recognized by the particular use of the hand in a wide horizontal sweeping movement. The paint was slightly thin giving a decided effect of perspective. The colors were numerous and interestingly blended, although different. Nick's four, covered with accidental shaker marks, were tightly restricted oval masses, and had sprinklings of dry yellow surface paint. No others had shaker marks or were so closely massed. Virgil's were very distinctive. He first covered the page with paint, using a horizontal movement, and then pushed both hands away from him, making two verticle hand marks across the center of the paper. This movement was evident in all four of his paintings, but very clear and pronounced in two.

Summary and Discussion

The usual procedure followed by three- and four-year-olds in the finger painting situation is to freely use all of the colors with little or no prefer-

[3] One painting of each of the twenty children in Group A was hung at the same time and each child brought into the room and asked to show the teacher which one was his "picture." This was repeated with each painting in the set. Ann apparently recognized two of hers, but no judge matched these correctly. Three other children correctly pointed out one of theirs. That there was so little success is not surprising, as they probably had forgotten them after an interval of six months, although frequently children of this age recognize their paintings after a considerable period of time.

ence, to cover or nearly cover the paper with moderately dark paint, fairly thick in texture, using the whole hand for manipulation. Features that characterize the paintings of an individual child lie rarely in the hues selected, but for the most part in the making of a very light or very dark painting; in the use of unusually large or small amounts of paint; in leaving uncovered an identical area of the paper; in unique movements of the hands and fingers and the creation of a design or pictorial representation. It is apparent with these young subjects as with the older ones mentioned by Napoli and others (1, 3) that all of the aspects of the finger paintings need to be considered together if the uniqueness of the work of a given individual is sought. Young children thoroughly enjoy experimenting with the colors and manipulating the paint. Whether or not finger painting ultimately proves of use in personality diagnosis at this age level, it unquestionably has therapeutic value and is an excellent recreational activity.

Bibliography

1. Arlow, Jacob A., and Kadis, Asja. Finger painting in the psychotherapy of children. *Amer. J. Orthopsychiat.*, 1946, 16, 134-146.
2. Blum, Lucille H., and Dragositz, Anna. Finger painting: the developmental aspects. *Child Develpm.*, 1947, 18, 88-105.
3. Napoli, Peter J. Finger painting and personality diagnosis. *Genet. Psychol. Monogr.*, 1946, 34, Second Half, 129-230.
4. Napoli, Peter J. Interpretive aspects of finger painting. *J. Psychol.*, 1947, 23, 93-132.
5. Napoli, Peter J., and Harris, William W. Finger painting for the blind. *J. Psychol.*, 1948, 25, First Half, 185-196.
6. Obrook, I. The therapeutic value of finger painting. *Crippled Child*, 1936, 13, 172.
7. Phillips, Edwin and Stromberg, Eleroy. A comparative study of finger painting performance in detention home and high school pupils. *J. Psychol.*, 1948, 26, 507-515.
8. Shaw, Ruth Faison. *Finger Painting*. Boston: Little, Brown, and Company, 1934.
9. Smith, Rae M. A study of the relation of the position of the color to the choice of color of preschool children in easel painting. Master's Thesis, Ohio State University, 1947.
10. Weisleder, Thelma E. Establishing rapport through finger painting. *Elem. Sch. J.*, 1947, 48, 82-87.
11. Wolff, Werner. *The Personality of the Preschool Child*. New York: Greene & Stratton, 1946.

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